

# Graduate Studies FALL 1987 (TIMES IN LIGHT FACE REPRESENT A.M. and TIMES IN BOLD FACE P.M.)

Course	Description	Room	Day & Hour	Instructor	Credit
-	COLLEGE OF A	RTS A	ND SCIEN	CES	
BIOLOGY	,				
Bio 303G A	Bacteriology (Prereq: Bio 121-122 or permission of	SLC 359 of instructor)	M W 9-9:50	Bottjer	3
Bio 303G A1	Laboratory (Lab Fee \$35)	SLC 305	⊺ <b>2-4:50</b>	Bottjer	
Bio 315G A	Molecular Biology (Prereq: Bio 121-122, Chemistry 231	SLC 359 ·232 or permis	M W F 10-10:50 ssion of instructor)	Turoczi	3
Bio 318G A	Developmental Biology (Prereq: Bio 121-122, 223-224 or per	SLC 359 rmission of ins	M W F <b>1-1:50</b> structor)	Turoczi	3
Bio 320G A	Plant Form and Function (Prereq: Bio 121-122, 223-224 or per	SLC 359 mission of ins	T Th 9-9:50 structor)	Klemow	3
Bio 320G A1	Laboratory (Lab Fee \$35)	SLC 349	W 2-4:50	Klemow	
Bio 340G A Bio 340G A1	Limnology Laboratory (Lab Fee \$35)	SLC 359 SLC 377	T Th <b>1-1:50</b> Th <b>2-2:50</b>	Houseknecht Houseknecht	3
CHEMIS.	(Prerea: Uhem 222 & 252)				
Chem 361G	A Biochemistry I (Prereq: Chem 232)	SLC 204	M W F 9-9:50	W. R. Stine	3
	CHOOL OF BUSIN	NESS A		OMICS =	-
		ILOU A	IND LOON	onnoo	
BUSINES	Einancial & Managerial	N 201	T 6-9	Croop	3
ACCIDULE	Accounting (Prereq: ACCT 101 & 102, BA 225)	000 201	10-5	01000	0
(Formerly ACCT S	503 Managerial Accounting)		To Be Arranged	Staff	3
BA 502 E1	Management Science	SLC 204	M 6-9	Penugonda	3
BA 502 E2	Management Science (Prereg: Computer Science)	SLC 270	W 6-9	Croop	3
BA 508 E	Management Information	SLC 270	Th <b>6-9</b>	Penugonda	3
	(Prereq: Admission to the MBA Prog Business and Economics, No compu	ram or permis	sion of the School of	sumed )	
BA 511 E	Modern International Commerce	BDF 13	T 6-9	Taylor	3
BA 513 E	Human Behavior & Marketing	SLC 342	Th 6-9	Batory	3
BA 521 E	Organizational Theory	SLC 204	Th 6-9	Raspen	3
BA 550 E1	Topics: Small Business Administration		To Be Arranged	Chmiola	3
BA 550 E2	Iopics: Regional Economic Development	KBY 302	W 6-9	Grossman	3
BA 553 E	Financial Markets & Inst.	DDD 202	M 6-9	Engel	3
BA 557 E	Pension Administration	BDF 12	Th 6-9	Farrar	3
BA 595 E	Independent Research		Io Be Arranged	Stan	3
ECONOM	ICS	DDE 10		0	
EC 505 E	Managerial Statistics (Prereq: EC 231)	BDF 13	M 6-9	Cordora	3
EUDIUE	Managenal Economics	DUF 13	VV 0-9	Williams	3
EDUCATION ED 510G E	Psychological Foundations	SLC 311	T 6-9	Ginsburg	3
ED 511 E	of Éducation Philosophical Foundations	ТВА		Williams	3
	of Education	ates.	Times		
	S	eptember 25 ctober 9, 10	5, 26 Fridays 7-10	3:	
	O	ctober 23, 2 ovember 13	24 Saturd	ays:	
ED 520G E	Tests and Measurements	SLC 311	W 6-9	Ginsburg	3
ED 532G E	Problems in Elem. Ed Stanguage Arts	SLC Rm. 1	W 6-9	Polachek	3
ED 534G E	Elem. Ed. School Curriculum (Prereq: 15 Graduate Credits)	SLC 409	⊺ <b>6-9</b>	Darte	3
ED 536G E	Elem. School Reading Instruction	SLC 160	M W <b>4-5:15</b>	Fremont	3
ED 541G E	Secondary School Curriculum	SLC 409	T 6-9	Darte	3
ED 550G	Project T.E.A.C.H.	TBA	TBA	Staff	3
ED 551G	P.R.I.D.E.	TBA	TBA	Staff	3
ED552G	Channels	IBA	IBA	Stall	3
ED 583G E	Machine Language (Prereq: One course in high-level lang	SLC 318 guage)	M 6-9	Pryor	3

Course	Description		Day & Hour	Instructor	Credit
197	SCHOOL O	F ENGI	NEERING		
	AND PHYS	ICAL S	CIENCES	Contraction of the	
ELECTRIC	CAL ENGINEERING				
FF 335 A	Microwaves & Antenna	SIC 209	T Th 8.9.15	Janaswamy	3
LL 000 A	Systems	020 200	1 11 0 0.10	oundowanny	U
FE 335 E	(Prereq: EE 332) Microwaves & Antenna	SI C 405	T Th 6:30-9:50	Janaswamy	3
LL 000 L	Systems	020 100		oundomainy	
FF 361 A	(Prereq: EE 332) Communication Systems	SI C 147	MWF		
LE OUT A		OLO TH	12-12:50	Yeroushalmi	3
PHY 351 A	(Prereq: EE 212 & 252) Quantum Mechanics	SI C 147	MWE 11-11-50	Bellas	3
EE 401 A	Analysis	SLC 342	T Th 2:30-3:45	Staff	3
EE 447 A	Computers, Systems & Devic	ces SLC 411	T Th 6:30-7:45	Mohseni	3
EE 481 E	Semiconductors Fabrication	SLC 22	M 5-11	Osadchy	3.
	Lab Pomoto Sonsing	SI C 200	M W 2.30 5.45	Armand	3
EE 505 A	nemole sensing	SEC 209	W W 2.30-5.45	Annanu	3
PHYSICS	Appliachla to the N	C Dhue			
PHV 301 A	Math Methods in Physics I	SIC 147	T Th 8.9.30	Bellas	3
ITT JULA	(Prereq: MTH 211 & 212)	010 147	11100.00	Donuo	0
PHY 323 E	X-Ray Diffraction	SLC 240	M 6-9:15	Janecek	4
PHY 323 1	Laboratory	SLC 240	W 6-9:15	Janecek	0
PHY 351 A	Quantum Mechanics (Prereg: PHY 301 & 310)	SLC 147	M W F 11-11:50	Bellas	3
PHY 380 A	Nuclear Physics	SLC 42	MWF 12-12:50	Maxwell	3
PHY 382 A PHY 401 A	Analysis	SLC 342	T Th 2:30-3:45	Staff	3
To satisfy the ph offered physics must be consul	hysics concentration compone courses numbered at the 300 ted.	ent of this deg I-level or abov	gree, students may ve. An advisor in th	choose from ne physics dep	currently artment
ENGLISH	Medieval English Literature	SI C 160	MT Th 10.10.50	Fiester	3
ENG 325G A	Shakespeare	SLC 209	T Th <b>1-2:15</b>	Kaska	3
	(Prereq: ENG 152 or 254)				
ENG 345G A	Early English Novel	KBY 302	M W F 2-2:50	Terry	3
ENG 370G A	Modern British Poetry	KBY 102	T IN 2:30-3:15	Guun	3
HEALTH S	SERVICE ADMINIS	TRATIO	N (MHA)		
HSA 500 E	National Health Policy	SLC 359	T 6-9	Healey	3
HSA 501 E	Leadership & Human	SLC 342	W 6-9	Livingstone	3
113A 303 E	(Prereq: ECON 102 Micro Theory)	SEC 333	101 0-3	ricalcy	U
HSA 511 E	Perspectives on Aging	SLC 359	Th <b>6-9</b>	Telban	3
HSA 530 E	Financing Health Care	SLC 160	T 6-9	Menichello	3
HSA 540 E	Labor/Management Relations	SLC 160	In 6-9	Livingstone	3
HSA 550 E2	Alcohol & Substance Abuse	SLC 339	VV 0-9	Ambrosino	3
110A 000 L 1	Alconor & Substance Abuse	September 1	1, 12 Weeker	nds:	
		October 2, 3 October 30, 3 November 13 November 27	6-9 8, 14 Saturd 7, 28 9-4	ays:	
HISTORY	POLITICAL SCIEN	ICE			
HST 334 E	The United States 1900-1945	Capin 15	T 6:30-9:30	Rodechko	3
HST 335 E	The United States since 1945	Capin 15	M 6:30-9:30	Cox	3
HST 354 E	French Revolution & Napoleon	Capin 15	M W F 10-10:50	Belatsky	3
HST 361 E	History of the Far East I	Capin 15	M W F 9-9:50	Shao	3
PS 312 E	Intergovernmental Relations	BDF 12	T 6:30-9:15	Tuhy	3
PS 324 A	Communist Systems (Prereg: PS 105 or consent of instr	SLC 204 uctor)	M W F 11-11:50	Bauzon	3

### **MATHEMATICS/COMPUTER SCIENCE**

(Prereq: PS 102 or consent of instructor)

Constitutional Law

PS 331 A

MTH 311G A	Functions of a Real Variable	SLC 403	MWF 11-11:50	Berard	3
MTH 351G A	Probability and Mathematical Statistics I	SLC 405	T Th 2:30-3:45	Merrill	3

### EDUCATION COURSES WITH SPECIAL INTEREST

ED 533 B	Problems in Elementary Education Science (PIES)	SLC 150	M 6-9	Placek	3
ED 580 E	Computer Literacy for Elementary Teachers	SLC 127	W 6-9	Pryor	3
ED 580 E	Computer Literacy for Secondary Guidance	SLC 127	⊺ <b>6-9</b>	Bellucci	3
ED 586 E	Microcomputers in Education (CORES II)	SLC 127	M 6-9	Koch	3

MTH 361G A	Introduction to Applied Mathematics I	SLC 405	T Th 9-10:45	Sours	3
CS 321G A	Simulation and Data Analysis	SLC 409	M W F 2-2:50	Merrill	3

SLC 204 T Th 1-2:15

Behuniak-Long 3

### **Special Feature**

Wilkes College Masters degree in Health Administration is accredited and formally approved by the Division of Academic Program Approval, Department of Education of the Commonwealth of Pennsylvania. Wilkes College is a member of the Council of Graduate Schools in the United States and Pennsylvania Association of Graduate Schools. The College is an Associate Member of the Association of University Pro-grame is Health Administration (ALIPHA).

grams in Health Administration (AUPHA). The Wilkes College Master of Business Administration has been extended to the Allentown area. Courses are offered at Allentown College.

The Division of Graduate Studies and Continuing Education is offering a variety of non-credit courses, workshops and seminars in professional development, cultural enrichment, and personal improvement. (There is a special brochure for the Continu-ing Education offerings.) Wilkes College Continuing Education is a member of the National Registry for Continuing Education and the Council on the Continuing Education Unit.





# Wilkes College Fall Semester 1987

- GENERAL INFORMATION -

# **Calendar** for **Fall Semester** 1987

**Registration for Evening College and Part-Time Day-School** Students:

Wednesday, Sept. 2.....Classes begin at 8:00 a.m. Monday, Sept. 7 (Labor Day) .....Classes are in session Wednesday, Oct. 21 .....Classes resume at 8:00 a.m. Tues., Nov. 24 ..... Thanksgiving recess begins at 10:00 p.m. Monday, Nov. 30.....Classes resume at 8:00 a.m. Tuesday, Dec. 15.....Classes end at 10:00 p.m. Thur., Dec. 17 thru Wed., Dec. 23.....Final Examinations

Weekend College (at Keystone Junior College)

Sept. 11 to Dec. 13 (including Final Examinations) Final Registration ......September 11 (Weekender Office, La Plume, Pa.) 4:30 - 6:30 p.m.

# Accreditation

Wilkes College is accredited by The Department of Public Instruction of the State of Pennsylvania and the Middle States Association of Colleges and Secondary Schools. The Chemistry curriculum has been certified by the American Chemical Society. The Electrical Engineering and Materials Engineering programs are accredited by the ABET, the sole authorized accrediting agency for engineering programs.

Admissions

Application for admission to Wilkes College as an evening college; part-time dayschool or weekend college student should be made to the Office of Evening, Summer and Weekend College, 184 South River Street, Wilkes-Barre, Pennsylvania 18766. Application for admission to Wilkes College as a full-time undergraduate student should be made to the Dean of Admissions.

# **Bookstore**

Books, stationery and supplies may be purchased at the College Bookstore, located on the lower level of Pickering Hall. They must be paid for at the time of purchase. The Bookstore is open from 8:30 a.m. to 4:30 p.m. Monday through Friday.

**Change Of** Schedule

The College reserves the right to cancel or reschedule any course due to insufficient enrollment or any other reason. When possible, any change in the course schedule will be posted during registration. Students who have registered for courses that are subsequently cancelled or rescheduled will be notified as promptly as possible.

# **Day-Care**

Day-Care is available for young children of Wilkes students from 7:00 a.m. to 5:30 p.m. at Child Development Council Centers near the campus. These services are partially subsidized by the College. For further information, contact Ms. Anne Graham, 824-4651, extension 367.

A "Certificate of Achievement" is available to undergraduate students in the field of Business Administration who earn 42 hours of credit in Evening College and Summer School programs with at least 24 hours in Business Administration and 18 hours in general education. Specific course requirements are available on request.

All charges must be paid at the time registration forms are processed. **Undergraduate:** 

- Undergraduate students who register for fewer than 12 credits pay \$150 per credit. Fees: \$3.00 per credit hour general college fee.
- Undergraduate students who register for 12 through 18 credits pay a flat tuition fee of \$3,215 per semester. (Students who take more than 18 credits pay \$150 for each credit above 18.)

Part-time as well as full-time students have a variety of aid programs available to them, but students must make formal application to establish their eligibility. Therefore, ALL undergraduate students are urged to apply for Financial Aid. Forms for this purpose are available in the Financial Aid Office. Inquiries about financial aid should be made to the Financial Aid Office. Information about Veterans' Benefits is available through the Veterans' Affairs Office.

The Eugene Shedden Farley Library is open to all Wilkes students. Students may borrow books from the Library by presenting their College identification cards. Hours are posted at the beginning of each academic session.

Evening college; part-time day-school and weekend college students may withdraw, without prejudice, from any course at any time during the first 6 weeks of the semester, providing that they give written notice to the instructor and to the Director of Evening, Summer and Weekend College within this 6week period. (Charges for courses from which a student withdraws will be calculated as of the date recorded on the official withdrawal form.)

Students who have paid their tuition in full and who withdraw from courses or from the College will receive a refund of tuition, upon written request to the Comptroller's Office, according to the following schedule:

**Time of withdrawal** First two weeks Third and fourth weeks

**Tuition Refund** 80%

### **Expenses**

## **Financial Aid For Undergraduates**

Library

Withdrawal

Assessitetion	Wilkes College is accredited by The	Department of Public Instruction of the State	Part-time as well as full-time students have
Accreditation	of Pennsylvania and the Middle Sta Schools. The Chemistry curriculum h Society. The Electrical Engineering a credited by the ABET, the sole author grams.	tes Association of Colleges and Secondary has been certified by the American Chemical and Materials Engineering programs are ac- rized accrediting agency for engineering pro-	available to them, but students must make to lish their eligibility. Therefore, ALL undergra to apply for Financial Aid. Forms for this pur nancial Aid Office. Inquiries about financial aid s cial Aid Office. Information about Veterans' Ben Veterans' Affairs Office.
Admissions	Application for admission to Wilkes ( school or weekend college student si mer and Weekend College, 184 Sou 18766. Application for admission to student should be made to the Dean	College as an evening college; part-time day- hould be made to the Office of Evening, Sum- uth River Street, Wilkes-Barre, Pennsylvania Wilkes College as a full-time undergraduate of Admissions.	The Eugene Shedden Farley Library is open to a may borrow books from the Library by presentin cards. Hours are posted at the beginning of eac
Bookstore	Books, stationery and supplies may cated on the lower level of Pickerin purchase. The Bookstore is open fr Friday.	be purchased at the College Bookstore, lo- g Hall. They must be paid for at the time of from 8:30 a.m. to 4:30 p.m. Monday through	Evening college; part-time day-school and wee withdraw, without prejudice, from any course a
Change Of Schedule	The College reserves the right to ca cient enrollment or any other reason schedule will be posted during reg courses that are subsequently ca promptly as possible.	ncel or reschedule any course due to insuffi- n. When possible, any change in the course istration. Students who have registered for ncelled or rescheduled will be notified as	weeks of the semester, providing that they give w and to the Director of Evening, Summer and We week period. (Charges for courses from which calculated as of the date recorded on the officia
Day-Care	Day-Care is available for young child p.m. at Child Development Council ( partially subsidized by the College. F ham, 824-4651, extension 367.	Iren of Wilkes students from 7:00 a.m. to 5:30 Centers near the campus. These services are For further information, contact Ms. Anne Gra-	Students who have paid their tuition in full and w from the College will receive a refund of tuition, u Comptroller's Office, according to the follow Time of withdrawal First two weeks
D	Bachelor of Arts		Third and fourth weeks Fifth week
Programs	Art Art Management Biology Chemistry Communication Studies Computer Information Systems Computer Science Earth & Environmental Sciences Economics	Foreign Languages History Individualized Studies International Relations Mathematics Philosophy Physics Political Science Psychology Sociology Theater Arts	Weekend College students who have paid their draw from Weekend College classes will receive tuition through the second weekend of classes <b>the Comptroller's Office within this period.</b> If the second weekend of classes. Fees are non-refundable. No student who is sus entitled to any refund.
	English Bachelor of Science:		For further information, write or call:
	Accounting Biology Business Administration Chemistry Computer Science Earth & Environmental Sciences	Engineering (a) Electrical Engineering (b) Engineering Management (c) Environmental Engineering (d) Materials Engineering Individualized Studies Mathematics Medical Technology Medical & Health Physics	Barbara E. King, Director Evening, Summer and Weekend College Wilkes College 184 South River Street Wilkes-Barre, Pennsylvania 18766 Phone: (717) 824-4651, Ext. 380 Toll-free: from Scranton, Pennsylvania 342- from elsewhere in Pennsylvania (8 from outside of Pennsylvania [Mic

**Bachelor of Fine Arts Bachelor of Music** 

Nursing Physics

a variety of aid programs ormal application to estabraduate students are urged rpose are available in the Fishould be made to the Finannefits is available through the

# **Financial Aid For** Undergraduates

all Wilkes students. Students ng their College identification ch academic session.

Library

# Withdrawal

ekend college students may at any time during the first 6 written notice to the instructor eekend College within this 6a student withdraws will be al withdrawal form.)

who withdraw from courses or upon written request to the wing schedule:

> **Tuition Refund** 80% 60% 40% no refund

ir tuition in full and who withe a refund of one-half of their s, upon written request to No refunds will be made after

spended or expelled shall be

Information

-5617 800) 572-4444 from outside of Pennsylvania [Middle-Atlantic and New England Regions] (800) 537-4444

# WILKES COLLEGE FALL SEMESTER 1987

Undergraduate Registration
(New students or students in need of counseling — Chase Hall, 2nd Fl.)
(Returning students – Sturdevant Hall, 1st Fl.)
Wednesday, August 268:30 a.m8:00 p.m.
Thursday, August 278:30 a.m8:00 p.m.

### Course Description Credits Day & Hour ACCOUNTING ACC 121 E Introduction to Financial Accounting **DDD 201** M 6:30-9:30 3 Fee: \$20.00 ACC 122 E Introduction to Managerial Accounting **DDD 201** Th 6:30-9:30 3 (Prereq: ACC 121) Fee: \$20.00 ACC 211 E Intermediate Accounting I DDD 201 W 6:30-9:30 3 (Prereq: ACC 122) ACC 221 E Taxes I DDD 202 W 6:30-9:30 3 (Prereq: ACC 212 or approval of instructor) **AEROSPACE STUDIES** AS 000 E Leadership Laboratory Armory 0 Th 7:00-9:00 0 AS 201 E Development of Air Power I **SLC 160** Th 5:00-5:50 1 AS 301 E Concepts of Management & Leadership I **BDF 13** Th 3:30-5:50 3 (Prereq: POC membership) **ANTHROPOLOGY** SLC 204 W 6:30-9:30 ANT 270 E Cultural Anthropology 3 (May be substituted for ANT 101) ART ART 101 E **Experiencing Art SLC 206** M 6:30-9:30 3 ART 255 E Graphic Arts Production SLC 115 MW 6:30-8:15 3 **BUSINESS ADMINISTRATION BDF 12** M 6:30-9:30 BA 209 E **Business Correspondence & Reports** 3 BA 225 E DDD 101 Th 6:30-9:30 3 **Managerial Finance** BA 231 E Business Law - Introduction, SLC 270 M 6:30-9:30 3 Contracts, and Sales BA 241 E Life Insurance SLC 270 T 6:30-9:30 3 BA 251 E Principles of Management **BDF 13** Th 6:30-9:30 3 BA 261 E **Principles of Retailing SLC 209** W 6:30-9:30 3 BA 397 E Seminar: Entrepreneurship W 6:30-9:30 3 Capin 15 **COMPUTER SCIENCE** CS 115 E Survey of Computers and SLC 411 MW 6:30-8:00 3 Data Processing CS 320 E Logic and Switching Circuits SLC 403 T Th 8:00-9:30 3 (Prereq: EE 211) CS 326 E **Operating System Principles** SLC 403 MW 6:30-8:00 3 (Prereq: CS 227/EE 343) **EARTH & ENVIRONMENTAL SCIENCES** EES 120 E Survey of Meteorology SLC 380 Th 6:00-7:50 3 EES 120\*E Laboratory SLC 435 Th 8:00-10:00 0 Fee: \$35.00

# **Undergraduate Division**

**EVENING COLLEGE CLASSES** 

September 2 – December 23, 1987

Course	Description	Room	Day & Hour	Credits
ENGLISH				
ENG 101 E	Composition I	SLC 209	M 6:30-9:30	3
ENG 151 E1	Western World Literature I (Prereq: ENG 102 or equivalent in composition)	SLC 1	T 6:30-9:30	3
ENG 151 E2	Western World Literature I (Prereq: ENG 102 or equivalent in composition)	SLC 1	Th 6:30-9:30	3
HISTORY				
HST 101 E	World Civilization I	SLC 207	T 6:30-9:30	3
HST 102 E	World Civilization II	SLC 380	T 6:30-9:30	3
HST 334 E	The United States, 1900-1945	Capin 15	T 6:30-9:30	3
HST 335 E	The United States since 1945	Capin 15	M 6:30-9:30	3
MATHEMA	TICS			
MTH 101 E	Fundamentals of Mathematics I	SLC 409	MW 8:00-9:30	3
MTH 111 E	Calculus I (Prereq: MTH 100 or at least 3 years of high school math including Geometry, Algebra II, and topics in Trigonometry.)	SLC 409	MW 6:00-8:00	• 4
MTH 211 E	Introduction to Linear Algebra and Differential Equations (Prereq: MTH 112)	SLC 405	MW 6:00-8:00	4
MUSIC				
MUS 101 E	Introduction to Music	DDD 218	T 6:30-9:30	3
NURSING				
NSG 200 E	Principles of Normal Nutrition (Prereq: CHM 130) (Coreq: NSG 201)	SLC 380	W 6:30-9:30	3
NSG 203 E	Nursing Care of the Adult Client   (Prereq: NSG 202) Fee: \$75.00	SLC 347	MW 6:30-8:30	8
NSG 271 E	Health Care Terminology (Held every other week)	SLC 380	M 6:30-8:30	1
NSG 272 E	Clinical Application of Pharmacology (Prereq: Jr. and Sr. Nursing students and R.N.'s only	SLC 318	⊤ 6:30-9:30	3
NSG 299 E	Nursing Forum I (Prereq: R.N.'s only)	SLC 334	T Th 6:30-9:30	6
NSG 303 E	Issues and Trends in Nursing (Prereq: NSG 204) (Coreq: NSG 301 or NSG 302)	SLC 311	Th <b>6:30-9:30</b>	3
NSG 305 E	Introduction to Research (Prereq: NSG 204, MTH 150)	SLC 316	⊤ 6:30-9:30	3
NSG 307 E1	Physical Assessment (Prereq: R.N.'s only)	SLC 311	M 6:30-9:30	3
NSG 307 E2	Physical Assessment (Prereq: Senior Nursing majors or R.N.'s only)	SLC 316	Th <b>6:30-9:30</b>	3

PHYSICAL EDUCATION

A ScheduleB ScheduleC ScheduleFri. 6:30-8:30Sat. 8:00-10:00Sat. 6:00-8:00Sat. 10:10-12:10Sat. 1:00-3:00Sun. 8:00-10:00Sat. 3:10-5:10Sun. 10:10-12:10Sun. 1:00-3:00Unless otherwise indicated, all courses in the Weekend College meet according to the above schedule:Sat. 1:00-3:00

(]

ACC ACC

> BUS BA 3

BA 3

BIO

EC

### EARLY REGISTRATION WILL BE ACCEPTED

PLEASE POS

8:30 A.M. - 4:30 P.M. AFTER AUGUST 1, 1987

# WEEKEND COLLEGE CLASSES Fall, 1987

on the campus of Keystone Junior College La Plume, Pennsylvania September 11 - December 13, 1987

### Calendar — Fall, 1987

September	11, 12, 13
October	2, 3, 4
*October	16, 17, 18
November	6, 7, 8
*November	20, 21, 22
December	11, 12, 13
*2-week interval	between classes

### (TIMES IN LIGHT FACE REPRESENT A.M. and TIMES IN BOLD FACE P.M.)

se .	Description	Room	Schedule	Credits
COUNT	ING			
244 W	Advanced Accounting (Prereq: ACC 212)	TBA	С	3
SINESS	ADMINISTRATION			
398 WA	Marketing Research (For Management or Marketing Concentration)	TBA	В	3
398 WB	New Product Management (For Management or Marketing Concentration)	TBA	С	3
LOGY				
103 W	Biological Science I	TBA	А	3

**ECONOMICS** 

		ULU 111	IVI U.UU-1.4J	4	DE 040 E	Treation Addatation Industry	010040	14 0.00 0.00	0	Loonomi	00			
EES 381 E	Mineralogy (Prereq: EES 211 and CHM 111 or 115)	SLC 434	T 6:00-7:45	3	PE 310 E	Ireating Athletic Injuries	SLC 316	M 6:30-9:30	3	EC 231 W	Economic Statistics I (Prereq: EC 101, 102, and 6 hours of	TBA	А	3
EES 381 E1	Laboratory Fee: \$40.00	SLC 434	T 8:00-10:00	0	PHY 101 E	Physical Science I	SLC 166	Th 6:30-8:30	3	HISTORY	mathematics)			
						mathematics is required for this course.)				HST 102 W	Western Civilization II	TBA	В	3
ECONOMI	CS	000 404	14 0.00 0.00	0	PHY 101 E1	Physical Science Discussion	SLC 150	Th 8:30-9:30	0					U
EG 101 E	Principles of Economics I	DDD 101	M 6:30-9:30	3	PHY 105*E	Introductory Physics I Laboratory	SLC 149	Th 6:30-9:30	0	POLITICA	L SCIENCE			
	Principles of Economics II		1 0:30-9:30	3	DUV 201 E	Conoral Physics I	CI C 166	M 6.20 0.20	4	PS 327 W	International Relations	TBA	С	3
	Money and Banking		VV 0:30-9:30	3		(Coreq: MTH 111)	SLC 100	IVI 0.30-0.30	4	PSYCHOL	OGY			
EU 231 E	Univariate Analysis	DDD 202	1 0:30-9:30	3	PHY 201 E1	General Physics I Discussion	SLC 160	M 8:30-9:30	0	PSY 255 W	Social Psychology	TBA	В	3
	(Prereq: EC 101, 102, and 6 hrs. of Mathematics) Fee: <b>\$20.00</b>				PHY 201*E	General Physics I Laboratory Fee: \$40.00	SLC 149	Th <b>6:30-9:30</b>	0		(Prereq: SOC 101, ANT 101, PSY 101, approval of instructor)	or		
EC 231*E	Laboratory	DDD 202	T 4:00-6:00	0	PHY 202*E	General Physics II Laboratory	SLC 151	T 6:00-9:00	0	PSY XXX W	TBA	TBA	A	3
EC 251 E	Microeconomics I	TBA	M 6:30-9:30	3		Fee: \$40.00				SOCIOLO	GY			
FDUCATIO	N				PHY 210 E	Introduction to Materials Engineering	SLC 147	MW 6:30-9:30	3	SOC 240 W	Medical Sociology	TBA	С	3
ED 203 J	Special Methods of Teaching	SLC 403	T 5:00-7:30	3	PHY 211 E	Statics and Dynamics (Prereq: PHY 201 or PHY 105, MTH 112)	SLC 424	MW 6:30-8:00	3		(Prereq: SOC 101, ANT 101, PSY 101, approval of instructor)	or		
ED 301 E	Health, Physical Education, and Safety in Early Childhood and	KBY 102	M 6:30-8:30	2	PHY 323 E	X-Ray Diffraction (Prereq: PHY 203)	SLC 240	M 6:30-9:30	4	SOC 255 W	Social Psychology (Prereq: SOC 101, ANT 101, PSY 101, approval of instructor)	TBA or	В	3
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ED 361 E	Early Childhood Education	KBY 102	W 6:30-9:30	3	DUV 220 E	Option and Light	010 147	DC.0 00.3 T	4					
ED 371 E1	The Individual in the Classroom (Prereq: Enrollment in ED 380)	KBY 102	1 6:00-8:30	3		(Prereq: PHY 202)	SLC 147	Th 6:20 0:20	4					
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ENGINEEF	RING				PHY 331 E	(Prereq: MTH 211, PHY 202)	SLC 405	1 In 8:00-9:30	3					
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EE 251 E	Electronics I (Prereq: EE 212)	SLC 334	MW 8:00-9:30	3		Fee: \$40.00					September 2 - Decer	nber 23, 1	987	
EE 321 E	Electric Machines (Prereq: EE 331)	SLC 207	M 6:30-9:30	3	POLITICA PS 102 E	L SCIENCE Introduction to American Politics	SLC 207	W 6:30-9:30	3	Part-ti should	ime students interested d contact the Office of E	in day-sch vening, Su	ool class	es nd
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EE 335 E	Microwaves & Antenna Systems (Prereq: EE 332)	SLC 405	T Th 6:30-8:00	3		(Prereq: PSY 101, PSY 221)	020012		Ŭ					
EE 341 E	Logic & Switching Circuits	SLC 403	T Th 8:00-9:30	3	SOCIOLO	GY	01 0 100	T C.20 0.20	0		Day-Care	Э		
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LL J44 L	(Prereq: EE 343/CS 227)	SL0 403	10100 0.30-0.00	3	300 204 L	(Prereq: SOC 101, ANT 101, or approval of instructor	3LC 204 r)	1 0.30-9.30	5	7:00 a.m. to the campus	5:30 p.m. at Child Develop . These services are partial	nent Counci v subsidized	l Centers by the Co	near ollege.
EE 381 E	Advanced Microelectronics Lab (Prereq: Sr. Engineering Standing) Fee: \$35.00	SLC 22	M 5:00-11:00	4	SOC 251 E	Fields of Social Work (Prereq: SOC 101, ANT 101, or PSY 101-102, or approval of instructor)	SLC 209	Th <b>6:30-9:30</b>	3	For info	ormation, contact Ms. An 824-46	ne Graham		
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EGR 283 E	Measurement Lab I Fee: \$20.00	SLC 23	Th <b>6:30-8:30</b>	1	SPEECH, SCT 260 E	COMMUNICATIONS, AND THEA Basic Newswriting	TER ART SLC 160	r <b>S</b> W 6:30-9:30	3	For fur	ther information contact.			
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MAE 311 E1	X-Ray Diffraction Laboratory Fee: \$45.00	SLC 240	Th 6:30-9:30	0						Phone: Toll-fre	(717) 824-4651 Ext. 380 ee: from Scranton, Pa. 342-5 from elsewhere in Pa. (8	617		

from outside Pa. (Mid Atlantic) and New England regions (800) 537-4444



Evening, Summer and Weekend College Wilkes College Wilkes-Barre, Pa. 18766



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THE REPORT OF THE OWNER -----



### **CORRESPONDENCE DIRECTORY**

Write to these persons for additional information on particular matters:

### Bernard Vinovrski Dean of Admissions

Correspondence concerning admission to Wilkes and visits to the campus for interviews. Campus tours and conferences with admissions counselors should be arranged in advance, when possible.

### Doris Barker Registrar

Correspondence concerning registration matters and academic records of currently enrolled or former students.

Jane Lampe-Groh Dean of Student Affairs

Correspondence concerning student activities and readmission of former students.

John G. Reese Athletic Director

Correspondence concerning intercollegiate athletics.

Office Hours: 8:30 to 4:30 Monday through Friday (717) 824-4651 (local) (800) 572-4444 (in Pennsylvania) (800) 537-4444 (adjacent states)

### Statement of Nondiscrimination

Wilkes College is committed to the policy that all persons shall have equal access to admission, programs, and employment without regard to race, religion, sex, national origin, handicap, age, or status as a disabled or Vietnam-era veteran.

### **Statement of Disclaimer**

The statements set forth in this Bulletin are for informational purposes only, and the College reserves the right to change any provisions or requirements, including tuition and fees, at any time within the student's term of residence.

### Mark Allen Director of Residence Life

Correspondence concerning residence matters for enrolled students.

Frances French Assistant Director of Financial Management

Correspondence concerning student accounts and other fiscal arrangements for new and currently enrolled students.

Rachael L. Lohman Director of Financial Aid

Correspondence concerning financial aid.

Barbara King Director of Evening, Summer, and Weekend College

Correspondence concerning part-time studies and International Students.

Mailing address: WILKES COLLEGE Wilkes-Barre, Pennsylvania 18766



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# Wilkes College

# 1987-88

# Bulletin

Undergraduate Studies

WILKES COLLEGE Wilkes-Barre, Pennsylvania 18766 Telephone (717) 824-4651



and large enough to meet them

Page 2

Together, we the students, faculty and staff form the Wilkes College community. As each of you defines yourself more clearly in this community of learners and scholars, so will you be confronting our shared definition of the problems we as a society must solve. Thus your learning is not just for yourselves. Nor are the careers you are preparing to enter. You are preparing to lend or bend your talents and energies to the perpetuation and the improvement of our society, even as you are preparing and investing to be personally successful for yourself and your family. As you invest yourselves in our shared activities and concerns, and make Wilkes your own, you will shape this into an even stronger, more viable institution. An Educated Man or Woman

understanding;

seeks truth, for without truth there can be no

Page 3

possesses vision, for we know that vision precedes all great attainments;

is aware of the diversity of ideas and beliefs that exists among all people;

has faith in the power of ideals to shape the lives of each of us;

knows that mankind's progress requires intellectual vigor, moral courage, and physical endurance;

cultivates inner resources and spiritual strength, for they enrich our daily living and sustain us in times of crisis;

has ethical standards by which to live;

respects the religious convictions of all people;

participates constructively in the social, economic, cultural, and political life of the community;

communicates ideas in a manner that assures understanding, for understanding unites us all in our search for truth.

-Formulated and adopted by the Wilkes College faculty as a guide to learning.



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"Our goal is to produce good people – young men and women who learn to think to the point where thinking is a habit; who have been exposed to and who have developed methods and approaches to the intelligent application of knowledge and, last but not least, who accept the virtue of work as a vehicle of service and the will to work as a self-discipline."

John Karakash, Ph.D. Trustee Emeritus





# Wilkes College

Wilkes College had its beginning in 1933 when Bucknell University established its Junior College in Wilkes-Barre. On June 26, 1947, Bucknell University Junior College came to an end and Wilkes College received its charter as a four-year, coeducational, liberal arts college. In 1959, the College was authorized to begin offering graduate programs. As the reputation and programs of this increasingly comprehensive institution continued to expand, the College reorganized itself in 1986 into a College of Arts and Sciences, a School of Business and Economics, and a School of Engineering and Physical Sciences. This new structure serves the approximately 1,700 full-time day students, 600 part-time students, and over 900 graduate students very well, and the College's enviable student to faculty ratio has been enhanced by this reorganization.

### Organization

The Chief Executive Officer of Wilkes College is the President. Directly beneath the President in the administrative structure are the Vice Presidents for Academic Affairs, College Advancement, and Business Affairs and Auxiliary Enterprises. The academic departments are administered under three divisions, each with a Dean as its administrative head: the College of Arts and Sciences, the School of Business and Economics, and the School of Engineering and Physical Sciences.

### **The College of Arts and Sciences**

The Dean of the College of Arts and Sciences represents fifteen departments. The academic departments within the College assume responsibility for the curricula of the traditional liberal arts: the humanities, the social sciences, and mathematics and the natural sciences. All students at Wilkes College will complete some course-work in these disciplines, since study in the arts and sciences provides many of the basic learning skills which enable one to write and speak effectively, to think critically, and to understand one's place in a complex and changing society. The general education or Core Curriculum, which provides a common educational experience for students preparing for a wide variety of academic as well as vocational goals, is a primary interest of the faculty within the College of Arts and Sciences. In addition, its departments provide programs for students majoring in the various arts and sciences, as they prepare for careers in the sciences, business and industry, government, the arts, and education.



The College of Arts and Sciences includes the following departments:

Aerospace Studies Art Biology Chemistry Education History and Political Science Language and Literature Mathematics and Computer Science Music Nursing Philosophy Physical Education and Health Psychology Sociology and Anthropology Speech, Communications, and Theater Arts

### The School of Business and Economics

The Dean of the School of Business and Economics represents three departments. The School offers a variety of programs leading to a B.S. in Accounting or Business Administration, and a B.A. in Economics. Minors in all three areas also are available. The various courses of study prepare students for management positions in business, industry, the nonprofit sector, and government, as well as professional licensings and graduate education. Interdisciplinary ventures, such as the Computer Information Systems and Engineering Management programs, provide opportunities for students to create individual educational experiences. The School also offers the Master of Business Administration Degree and Master of Health Administration Degree.

The School of Business and Economics includes the following departments:

Accounting Business Administration Economics

## The School of Engineering and Physical Sciences

The Dean of the School of Engineering and Physical Sciences represents three departments. The School offers a wide variety of programs and degrees, which provide strong engineering and scientific experience with advanced techniques heavily integrated into the curriculum. This philosophy encompasses the graduate, the undergraduate, and the two-year programs offered by the Departments of Earth and Environmental Sciences, Engineering, and Physics. All of the programs offered by the School are available to the part-time and evening student.

The strength of the programs offered by the School is their balance of the theoretical and practical, of liberal learning and professional preparation. Students have the opportunity to apply knowledge to real problems by working in state-of-the-art laboratories instructed by highly qualified faculty. Beyond balancing theory and practice, the faculty seeks to increase the student's capacity to serve others with intelligence, imagination, and integrity. This effort is directed toward preparing students for positions in industry, government, and the non-profit sector as well as graduate schools.

In the scientific outreach effort stressed by the School, there has been a strong affiliation with the community to aid in research and development, education, and technology training and transfer. Funding of joint college-industry projects has underscored the high level of scientific and technological expertise, and has included relationships not only with local firms but with world leaders in industry.

The School has entered into transfer articulation agreements with local and national two-year colleges as well as four-year colleges and universities.

The College of Engineering and Physical Sciences includes the following Departments:

Earth and Environmental Sciences Engineering Physics

### **Mission of the College**

Wilkes College is an independent, non-denominational college where students can combine a liberal arts and sciences education with professional preparation. Wilkes offers majors in the traditional disciplines of the humanities, social sciences, and natural and physical sciences. In addition, the College has developed strong professional programs in accounting, business, communications, computer science, engineering, music, the health sciences, and nursing. Wilkes prides itself on being an institution where students with varying preparation for college work can receive a quality education that will prepare them for the challenges of a rapidly changing world and make them fully competitive in major graduate and professional schools.

Wilkes brings together motivated students and highly qualified, dedicated faculty and staff in a supportive atmosphere that encourages each student's intellectual and personal development. The challenge of high academic standards is matched by a learning environment that provides students with the personal attention and resources needed for full educational growth.

Wilkes reaffirms its long-standing commitment to a core curriculum designed to help students discover and integrate the intellectual disciplines and to foster critical and creative thought, effective communication, mathematical skills, and computer literacy. Both the core and the total curriculum are periodically reviewed to insure responsiveness to the important changes taking place in higher education and to support a broad but integrative educational experience.

The strength of a Wilkes education is its balance of the theoretical and practical, of liberal learning and professional preparation. Students have the opportunity of applying knowledge to real problems by working in wellequipped laboratories, serving internships, and participating in cooperative education. Beyond balancing theory and practice, a Wilkes education seeks to increase students' capacity to serve others with intelligence, imagination, and integrity.



Extracurricular activities at Wilkes are central to the education of the whole person. Musical performance, athletics, radio and television broadcasting, AFROTC, student government, debate, social service organizations, drama, and a variety of clubs afford a broad range of opportunities for participation in college life. The Wilkes campus, located in the historic district of downtown Wilkes-Barre, brings together residential and community students in an atmosphere that promotes their full social and personal development.

A vital part of the mission of Wilkes College is service to Northeastem Pennsylvania. Wilkes has encouraged the fine arts and the performing arts through the Sordoni Art Gallery, the Dorothy Dickson Darte Center for the Performing Arts, and the outstanding cultural events that the College regularly sponsors. The Eugene Shedden Farley Library serves as a comprehensive information and resource center for the region. In response to the needs of business and industry, the College has become a regional center for engineering, science, and technology. The College also responds to the needs of part-time students by making most of its degree programs available to the nontraditional student through evening and weekend courses. In addition, a growing part of the College's community service is the program for continuing education, which provides courses for learners of all ages.

Building upon solid undergraduate programs, Wilkes also provides an important service by offering graduate degrees for students who wish to acquire advanced education in specific professional fields. Most of the graduate programs at Wilkes are multidisciplinary. The teachers of the region are served by master's degrees in education and in the humanities, social sciences, and sciences. Master's degrees in business administration, electrical engineering, engineering and applied sciences, and health administration are designed to prepare for professional opportunities.

Wilkes College will continue to offer an education that prepares its students to deal intelligently with the complexities of a rapidly changing society as it approaches the twenty-first century.

### Accreditation

Wilkes College is accredited by the Department of Education of the Commonwealth of Pennsylvania and the Middle States Association of Colleges and Secondary Schools. Certain academic programs are also individually accredited by appropriate professional organizations. The Chemistry curriculum is approved by the American Chemical Society. The Electrical and Materials Engineering programs are accredited by the Accreditation Board for Engineering and Technology (ABET). The baccalaureate program in Nursing is approved by the Pennsylvania State Board of Nurse Examiners and is accredited by The National League for Nursing.

### **Buildings and Facilities**

The Eugene Shedden Farley Library, completed in 1968 and named after the first president of the College, is a major resource for the region and a superior small-college library. It contains more than 180,000 volumes of books and bound journals, 1,250 current journal and newspaper subscriptions, about 500,000 units in microforms, an extensive collection of research materials in English literature, American cultural history and the history of science, and one of the finest retrospective collections of serials in the region. All materials are shelved in open stacks, and the air-conditioned building is open seven days a week with comfortable study areas for 500 students. Special facilities for students include the Media Center, the microroom for both micro-materials and reading/printing equipment, direct access to the collections of various regional academic, public and medical libraries through the Northeastern Pennsylvania Bibliographic Center as well as instant access to a nationwide network of thousands of research, academic, public and special libraries through the Interlibrary Loan System of the Online Computer Library Center.

The **Dorothy Dickson Darte Center for the Performing Arts**, dedicated in 1965 and the gift of Dorothy Dickson Darte, features a fully-equipped, 500-seat theater on a site deeded to the College by the Wyoming Valley Society of Arts and Sciences. It contains a scene shop, dressing rooms, rehearsal areas, costume rooms, hydraulic lift forestage, patch panel with 246 circuits, and a 10-scene preset with 60 dimmers. The facility is well-equipped for instructional use and regularly used for college and community presentations.

The **Dorothy Dickson Darte Music Building** opened in the summer of 1969 as the second phase of the Center for the Performing Arts. It houses faculty offices, studios, classrooms, practice and rehearsal rooms, and it is the centerpiece for the College's highly regarded music programs. Concerts and recitals are regularly presented in Gies Recital Hall and are open to the public.

The **Sordoni Art Gallery**, given to Wilkes College in 1973 by The Andrew J. Sordoni Foundation, Inc. is located in Stark Learning Center adjacent to the Department of Art. The main purpose of this modern facility is to present art exhibitions to enrich the lives of the College community and the region. Exhibitions are supplemented by lectures, tours, demonstrations, and related arts programs. A growing permanent collection embraces all media but is particularly strong in nineteenth and twentieth century American and European paintings and a print collection which includes old masters as well as contemporary artists. The Gallery is a particularly valuable study facility for students.



**Stark Learning Center,** named in honor of the late Admiral Harold R. Stark who was an Honorary Chairman of the College's Board of Trustees, opened in 1958 and was expanded in 1973. Stark Learning Center is the major instructional facility on campus, and it provides approximately 85,000 square feet of modern classroom, laboratory, studio and office space. It houses the Departments of Art, Biology, Chemistry, Earth and Environmental Sciences, Education, Engineering, Mathematics and Computer Science, Philosophy, Physics, and Psychology as well as the College's Computer Support Center.

The Computer Support Center supports the academic and administrative functions of the College 24 hours a day 7 days a week, including the automation of the College's library operation. Academic support provides assistance to faculty as well as students in the areas of program conversion and development. The Data General MV 10000 with 8-MBytes of main memory and 1.4-GBytes of disc space supports 110 terminals and peripherals used not only for programming but also for word processing (TIPS), engineering (SPICE, ANSYS, SUPREM), statistics (SPSS, MINITAB, BMDP), science (IMSL), simulation (SLAMII), and a variety of applications including CAD. A variety of microcomputers (Apple IIe, Apple Macintosh, and IBM PC) are available to students in clusters throughout Stark Learning Center and in some laboratories. They are available for instructional as well as individual student use during normal college hours; additional hours are posted at the beginning of each term. These units offer a large and growing variety of software including wordprocessing, graphics, CAD, spreadsheet, database management, and simulation. The Hewlett Packard 3000/68 with 5-MBytes of memory and 1.6-GBytes of disc space supports terminals used by all administrative offices in their daily operations.

The **Conyngham Student Center**, refurbished by the Conyngham family and friends, is a multi-functional unit available to individual students and student organizations for activities and relaxation. It includes a snack bar and game room and provides a pleasant meeting place for students and faculty alike.

The **Gymnasium and Outdoor Recreational Plant** provide space for organized intramural and intercollegiate athletic events as well as wellness and leisure-time activities for individual students. The current gymnasium seats 2,000 and planning is underway to expand the facilities in size and function. In addition to playing fields for baseball, softball, field hockey, soccer, and football, the College has a weight room and asphalt tennis courts. Wilkes actively promotes usage of all of its facilities by all constituencies of the College. The College's **Residence Halls** house 900 students in a variety of living arrangements in facilities ranging from stately Victorian and Tudor mansions to the ultra-modern accommodations of Evans Hall. Each residence hall is staffed by graduate or undergraduate Resident Assistants, who provide guidance and supervision and assist in the development of a constructive learning environment. Available to all single full-time students, full-time undergraduate students who are under 18 years of age are **required** to live in college residence halls during their first and second semesters unless they have been granted permission from the Residence Life Office to reside off campus or they commute from the home of their parents or legal guardian. Detailed information regarding residence halls and residence life can be obtained from the Office of Admissions or the Residence Life Office.







# **Student Life & Services**

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Student Activities College Activities Advising and Counseling Other Student Services



## **Student Life**

Wilkes College is a community of learning in which creative scholarship, personal growth, and social relationships are interwoven. Students, faculty and staff work together to promote individual development through a variety of activities, programs, organizations and cultural opportunities which support student life and complement the academic program. All campus organizations are open to all students, and all of them work in close cooperation with faculty advisors and deans.

The information which follows gives a brief sketch of some of these activities and organizations. All new students receive a **Student Handbook** which explains student government, outlines college regulations, and provides a directory of student activities.

### **Student Activities**

An active Student Government and numerous campus clubs and specialinterest organizations provide a structure of activities for student life outside of the classroom. An Inter-Residence Council and a Commuter Council organize many activities for resident and commuter students, and a Student Programming Board oversees a full schedule of social events at the College.

Students publish the **Beacon**, a weekly newspaper; the **Manuscript**, an annual journal of art, poetry, and fiction; and the **Amnicola**, the College yearbook. The College also maintains an FM radio station, WCLH, which is operated by students and broadcasts daily throughout the Wyoming Valley. Other student activities that provide creative outlets include the theater, the jazz band, choruses, numerous brass, woodwind and percussion ensembles, and an active intercollegiate forensics and debate organizaion.

### Sigma Xi

Sigma Xi, the Scientific Research Society, has established a local affiliate on the Wilkes College campus. The Club serves as a forum for cooperation and exchange of ideas among research-oriented scientists in the area. The Club welcomes as members local collegiate, professional, and industrial researchers engaged in original scientific investigations.

### **Intramural and Intercollegiate Athletics**

Wilkes sponsors an active intramural sports program as well as intercollegiate competition in 14 varsity sports. Varsity programs for women include basketball, field hockey, soccer, softball, tennis and volleyball; men compete at the varsity level in baseball, basketball, cross country, football, golf, soccer, tennis and wrestling. With the exception of wrestling, varsity teams compete at the Division III level; wrestling is a Division I program. The College is a member of the Middle Atlantic Collegiate Athletic Conference (MAC), the Eastern Collegiate Athletic Conference (ECAC), and the National Collegiate Athletic Association (NCAA).

### **College Activities**

In addition to the curricular and cocurricular activities of particular organizations, a number of all-campus and campus-community events are held each year. Parents' Day, Homecoming, Winter Weekend, and the Cherry Blossom Weekend are typical of the social and cultural events which help to promote an active and involved student body. The College joins area cultural groups each year for the annual two-weekend Cherry Blossom Festival and for the Fine Arts Fiesta, a four-day festival of music, drama, and the arts founded by the College and presented each spring. A carefully selected Concert and Lecture series is presented throughout the regular college year at Dorothy Dickson Darte Center for the Performing Arts and is open to the College community and public without charge as are regular concerts and recitals presented by the Music Department.

# **Student Services**

Wilkes College takes seriously its commitment to encourage students to discover their own abilities and potential and to assist them in making sound, independent decisions. Students are expected to consult regularly with classroom instructors, faculty advisors, the deans, or the department chairmen regarding academic matters. Recognizing that students sometimes need additional guidance in resolving personal, social or academic problems, the College has also institutionalized a variety of programs to assist students, individually and in groups, during their term at the College and afterwards.

### **New-Student Orientation Program**

The transition from the directed work of the high school to the independent and more intensive work of the college is smoothed by introducing new students to the College and its services before classes formally begin. Several days during the summer and at the beginning of the term are set aside to assist new students in planning their academic programs and learning about the campus, the curriculum, and student activities. At this time, students are also introduced to their academic advisors and the advising system at the College.

### **Student Advisement**

Specially selected faculty members and administrators have been designated freshman advisors on the basis of their knowledge of curricular matters and, more generally, the College and its services. Each freshman is as-



signed to a freshman advisor during the orientation period and will meet with this advisor regularly throughout the freshman year to arrange schedules, discuss academic and career plans, and deal with problems or questions as they arise. At the conclusion of the freshman year, full-time students are re-assigned to advisors within the department or program in which they choose to major or concentrate. These faculty advisors add the special expertise of their disciplines to the advising process and acquaint students with supplemental advising and counseling services available at the College.

### **International Student Advisor**

The International Student Advisor provides immigration and visa information and assistance as well as advice on academic concerns and personal issues. The Advisor provides orientation to life in the United States and the American educational system; serves as the spokesman for international students in dealings with U.S. and foreign government agencies, other campus offices and departments, and the community; and serves as advisor to the International Organization. These services are available to all international students, non-immigrants and immigrants alike.

### **Part-time Student Advisor**

The Director of the Evening, Summer, and Weekend College serves as academic advisor and counselor to all part-time undergraduate students at the College. Part-time students are eligible for all services provided by the College but may need to make appointments with certain offices beyond normal college hours; thus, they are advised to meet regularly with the Director who will assist in these matters as well as refer part-time students to the appropriate offices for particular needs.

### **Special Advising and Counseling Services**

Due to the intricacies of certain programs or requirements imposed by professional and graduate schools or external accrediting agencies, the College has named advisors in special areas of interest. The Dean of Health Sciences functions as a special advisor to all students interested in professional or graduate school opportunities in medical or health-related fields. The Pre-Law Advisor works with students from any discipline who wish to go on to law school. The International Studies Advisor counsels students in matters relating to studying abroad and career and professional opportunities in this field. The Director of Cooperative Education counsels and advises students interested in this program or a variety of other internship possibilities. Information on any of these special services is available virtually anywhere on campus, but the Office of the Dean of Student Affairs serves as a readily accessible and convenient source of information for these and other services provided for students.

### **The Student Affairs Office**

The student affairs staff helps students with their personal or educational problems, handles student emergencies, works with students who have been referred to them by other members of the College community, and provides general information about campus and community resources. The Dean of Student Affairs is generally familiar with all College services and specifically coordinates the activities of the residence-life staff and the Director of Student Activities as well as the College Health Service, the College Counseling Service, the College Testing Service, and the Office of Career Services.

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### **College Health Service**

The Health Service Office is staffed during normal College hours by a registered nurse. Appropriate referrals to area doctors and hospitals are made as necessary. Group Health insurance is available through the College.

### **College Counseling Service**

The Counseling Service is available to individual students during normal college hours and at other times, as necessary, to discuss personal problems or concerns. Referrals to campus and area agencies and professionals are made when appropriate. The Director of College Counseling also works closely with all student groups and College personnel to provide timely workshops and group sessions on areas of interest or concern such as assertiveness training, time management, or health-related topics.

### **College Testing Service**

The College maintains a Testing Center to assist the deans and faculty in their counseling of students. The College Testing Service is also available, at no charge, to all current Wilkes students as well as College alumni and their families. The Center also provides services to business, industry, state and federal agencies for a fee.

### **Career Services**

The Office of Career Services is the liaison between the College and potential employers in business, industry, government, and educational institutions. Students are encouraged to familiarize themselves with the services provided by this Office upon their arrival on campus and to use them regularly in all phases of their career development.

Typical services include career counseling workshops on resume preparation, interviewing skills and job search strategies. In addition, the Career Services Office operates a credentials service for all registered candidates, maintains contact with professional and educational organizations through



an on-campus recruiting program, and shares job information on various full-time and part-time opportunities of interest to students and alumni.

A Career Resource Library is available to identify the variety of career options for students in any major, and Cooperative Education internships for academic credit and institutional work/study jobs are also available to qualified students.

The Office of Career Services participates each Fall Semester, with other area colleges, in Career Day and sponsors Career Exchange each Spring Semester. The former makes over 100 employer and professional/graduate school representatives available to students and the latter gives current students the opportunity to meet with Wilkes alumni to conduct information interviews and to discuss career planning.

### Academic Support Center

The Academic Support Center provides free tutorial services in all courses to Wilkes College students. Services include individual tutoring in any course, group study sessions, small group supplemental instruction seminars, and assistance in basic skills. During the summer, the Center offers a six-week College Skills Improvement Program designed to help entering students improve their English, reading and study skills, and prepare for college-level courses in Mathematics, Biology and Chemistry.

### Writing Laboratory

The Writing Laboratory is available to all Wilkes students who seek personal assistance with particular writing problems or particular writing assignments. Students who experience writing difficulties in courses may be referred to the Laboratory to hone their writing skills.

### Act 101 Program

The Act 101 Program at Wilkes College allows educationally underprepared students to improve their skills in verbal and written communication, reading comprehension, mathematics and problem solving in an effort to acquaint students with and help them adjust to the many new experiences provided by a college education.

### **Project Upward Bound**

A federal program at the College since 1967, Project Upward Bound provides disadvantaged high school students with a college preparatory program of curricular and extracurricular activities designed to improve academic skills and self-confidence and to deepen curiosity and human understanding. Students attend weekly classes and tutoring and counseling sessions on campus. In the summer, the six-week residential program prepares students for fall classes and provides intensive career guidance.

### **Day Care Service**

Since 1982, the College has provided partially subsidized day care service to students through an arrangement with the Child Development Council of Northeastern Pennsylvania. The service offers regular full- and part-time day care at a reduced fee to students at centers conveniently located near to campus. Children must attend on a regular, scheduled basis to be eligible for the reduced fee.

### **College Bookstore**

The Bookstore sells new and used books, stationery and supplies, and College memorabilia during normal College hours, and it is open for additional hours at the beginning of each term. The bookstore accepts cash, personal checks, Visa or MasterCard.







# Admissions

Admission Requirements Admission Procedures Advanced Placement



### Admission

### **Required High School Preparation**

A student's secondary school preparation should include a pre-college curriculum with four years of English, three years of mathematics, and a minimum of one year of history and one year of a laboratory science. Additional courses should be elected in academic subjects according to individual interests. Students whose preparation has not followed this pattern may still qualify for admission if there is other strong evidence that they are prepared for college work.

Students intending to major in Biology, Chemistry, Computer Science, Engineering, Mathematics, Medical Technology, or Physics should have at least three years of college preparatory mathematics courses (including algebra II, geometry, and topics in trigonometry) so as to be prepared to take Mth 105 or 111 (calculus) in the first term of the freshman year. The student without such background is advised to take, preferably in the summer preceding entrance, Mth 100 (algebra and trigonometry) offered at Wilkes or an equivalent course at another college or university. Credits in such remedial courses will not exempt the student from any required course in these programs.

Students majoring in Nursing are required to have completed courses in English (four units), Social Studies (three units), Mathematics (two units including algebra), and Science (two units including biology and chemistry) during their secondary school program.

### **Application for Admission**

Applications for admission and instructions regarding secondary school records, recommendations, and entrance examinations may be obtained from the Office of Admissions. The completed applications should be returned directly to the Admissions Office with a non-refundable \$20 application fee.

### **Admissions Tests**

The Scholastic Aptitude Test (SAT) of the College Entrance Examination Board is required of all applicants. Students should plan to take this examination in the fall term of their senior year, although many applicants take the exam in their junior year. Wilkes is a member of the College Entrance Examination Board.

Students communicating with the Educational Testing Center in Princeton, New Jersey, or in Los Angeles, California, should refer to the Wilkes College code number 2977.

### Acceptance of Admission and Deposit

After receipt of the secondary school record, the secondary school recommendations, and the senior College Board scores, the Admissions Office acts upon all applications. Notification of action is sent immediately. Resident students are required to forward a \$150 tuition and dormitory deposit by May 1 in order to guarantee their entry into the College. Commuting students are required to forward a \$75 tuition deposit by May 1.

Upon their acceptance for admission to the College, music applicants will be required to audition for the music faculty.

The College accepts a limited number of applications for the spring semester. Procedures are similar to those followed in the fall semester.

### **Campus Visits**

Although a personal interview with each student is not required, an interview is strongly recommended. Students and their families are encouraged to visit the College at their convenience. It is advisable to call or write for an appointment so that the appropriate deans may arrange to meet with them.

A number of campus visitation days are held during the academic year. Visitation days include a general meeting with the admissions staff, current students, and administrative personnel; a tour of the campus; a light lunch; and meetings with faculty from the academic departments. Specific information about and the dates of the visitation days are available upon request from the Office of Admissions.

### **Admission of International Students**

In order to be considered for admission to Wilkes College, international students must submit the following: completed application, official results of the TOEFL (Test of English as a Foreign Language) or evidence of the successful completion of an accredited intensive English language program, Declaration of Finances Form (which may be obtained from the Wilkes College Office of Admissions), official transcripts of all secondary and/or post-secondary work completed to date, and a copy of the secondary and/or post-secondary diploma or leaving certificate.

Students should apply by June 15 for the fall semester or November 15 for the spring semester.

The form I-20 is issued only when the application is complete and the candidate is judged to be admissible.



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### **Admission of Transfer Students**

The College welcomes transfer students from other accredited colleges and universities for both the fall and spring semesters. Transfer students must submit a formal application, a high school transcript, a college transcript from each institution attended, and their Scholastic Aptitude Test scores if they have earned fewer than 30 credits. Applicants must be in good academic standing with a minimum grade point average of 2.00 (C) at the beginning of the semester they first enroll at Wilkes. All courses with a grade of 2.00 (C) or better that are comparable to the curriculum at Wilkes will be accepted for transfer. Students transferring into the nursing program must arrange their schedule and register **after** consultation with the chairman of the Department of Nursing.

All transfer students must complete a minimum of one-half of their major field credits at Wilkes College.

Transfer students from two-year institutions must complete a minimum of 60 credits at baccalaureate degree-granting institutions. The last 30 of these credits, at minimum, must be earned at Wilkes College.

Grades earned in courses accepted for transfer are **not** included in the computation of the cumulative grade point average earned at Wilkes College.

College policy prohibits the Office of Admissions from admitting any sudent who has been dismissed from any other college or university until a period of one year has elapsed from the time of dismissal. Students who have been placed on probation by a college or university will be considered for admission on a case by case basis.

### **Readmission to the College**

Students who have been enrolled full-time at the College and have terminated their studies, but wish to return as full-time students must meet with one of the deans in the Student Affairs Office as the first step in the readmission process. Former full-time students who wish to return as part-time students will meet with the Director of Evening, Summer, and Weekend College to discuss their readmission.

### **Admission of Part-time Students**

Those who wish to enroll as part-time students should contact the Director of the Evening, Summer, and Weekend College to discuss their plans and to obtain an Application for Admission. Students who have completed collegelevel work at another institution must submit an official transcript of their work as part of the admission process. Those who have completed no college work should arrange to have an official high school transcript forwarded in support of their application. All documentation should be sent to the Director of the Evening, Summer, and Weekend College.

### Part-time to Full-time

Part-time students who wish to enroll as full-time students must consult with the Director of Evening, Summer, and Weekend College as the first step in this process. Students having completed 30 credits or more and having maintained a grade point average of 2.00 will automatically be accepted as full-time students. Students who have completed fewer than 30 credits will be required to provide high school transcripts and appropriate test scores in support of their petition to enroll full-time before a decision will be rendered.

### **Full-time to Part-time**

Students who have been enrolled full-time and wish to become part-time students should meet with one of the deans in the Student Affairs Office as the first step in this process. Normally, these students will retain their major advisor for a period of one year after they make this transition. After one year, the Director of the Evening, Summer, and Weekend College will become their academic advisor.

# **Advanced Placement Credit**

Wilkes College encourages students to work to their full capacity and to advance as rapidly as appropriate in their academic work. A number of opportunities are open to qualified high school juniors and seniors, as well as to adults returning to school after an interval of work or military experience, to demonstrate competence beyond that normally associated with graduation from high school. Academic credit may be granted for such demonstrated competence through a variety of channels.

### **Advanced Placement Program**

Students who have successfully passed one or more of the Advanced Placement Tests administered by the College Entrance Examination Board may request advanced placement and/or academic credits. Advanced Placement means that the student may be scheduled for a course at a more advanced level; a decision on advanced placement is made after review of the examination by the academic department concerned. Credit means that the student receives credit toward the hours required for graduation. Generally, credit will be granted for scores of 3, 4, or 5. Occasionally, a personal interview may be required before placement and/or credit is awarded. No grades are assigned to the courses for which the student receives advanced placement credit. Information on specific course examinations and credit may be obtained from the Office of Admissions.



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### College-Level Examination Program

The College grants credits on the basis of satisfactory performance on the Subject Examinations, **not** the General Examinations, of the College-Level Examination Program (CLEP) administered by the College Entrance Examination Board. CLEP credits from an accredited institution are transferable to the College. Although the program is designed primarily for adults, exceptionally well qualified high school seniors may find it advantageous to seek academic credit through the CLEP. The following CLEP Subject Examinations and course equivalencies have been approved by the various academic departments:\*

CLEP Subject Examination	Wilkes Course Equivalent	Credit
Intro. to Accounting	Accounting 101	3
General Biology	Biology 103 & 104	3&3
Microbiology	Biology 113	4
Anatomy	Biology 115	4
Physiology	Biology 116	4
Intro. to Marketing	Business Admin. 222	3
Intro. to Business Law	Business Admin. 231	3
Intro. to Management	Business Admin. 251	3
General Chemistry	Chemistry 101	3
Fortran IV	Computer Science 123	3
Intro. Macroeconomics	Economics 101	3
Money & Banking	Economics 201	3
History of American Educ.	Education 201	3
Educational Psychology	Education 202	3
Tests & Measurements	Education 351	3
Freshman English	English 101	3
College Composition	English 101	3
Analy. & Interpret. of Lit.	English 102	3
English Literature	English 253 & 254	3&3
American Literature	English 381 & 382	3&3
College French – Levels 1&2	French 101 & 102	3&3
College German – Levels 1&2	German 101 & 102	3&3
Western Civilization	History 101 & 102	3&3
American History	History 207 & 208	3&3
College Algebra – Trig.	Mathematics 100	4
Calculus w/Elem. Func.	Mathematics 111	4
Statistics	Mathematics 150	3
American Government	Political Science 102	3
General Psychology	Psychology 101	3
Intro. to Sociology	Sociology 101	3
College Spanish – Levels 1&2	Spanish 101 & 102	3.83

\*Scores must be at the 50th percentile or above.

Official scores on CLEP Subject Examinations should be forwarded directly to the Evening, Summer, and Weekend College Office for evaluation.

### **Credit for Military Experience**

Students who have completed the special educational programs offered by branches of the American armed services may be granted academic credit for this course-work. Such students should submit an official transcript of their work as part of the admissions process. Transcripts will be evaluated according to the guidelines provided by the American Council on Education, and credits granted will be applied to the degree program as appropriate. For more information on this program, contact the Office of Admissions.

### **Challenge Examinations**

After admission to Wilkes College, students may elect to take examinations demonstrating their competence in a particular course. Advanced placement and/or credit can be earned by successfully passing a Challenge Examination administered by the appropriate department. Interested students should contact the appropriate department chairman to discuss the particulars of the examination.

A fee of \$20 per credit will be assessed for each Challenge Examination. The fee is payable in advance of the examination and a receipt from the Finance Office must be presented before the Challenge Examination will be administered.

### **RN - Validation of Prior Learning**

Registered nurse students and students who are eligible to sit for NCLEX-RN may validate prior learning by successfully completing the Mosby Assess Test (Secured Version). Upon successful completion of this examination and Nursing 299, the student will receive credit for Nursing 202, 203 and 204. Registered nurses should contact the Department of Nursing for more information on this program.

### **Credit for Life Experience**

After admission to Wilkes College and when all other means of securing credit for demonstrated competencies have been exhausted, a student may petition for credit for life experience. Petitions must be submitted through the Director of the Evening, Summer, and Weekend College, though the final decisions on such petitions are made by the Academic Standards Committee on the recommendation of the Subcommittee for Life Experience. Credit awarded on the basis of life experience may not exceed 30 hours, and these credits may not be applied to the Core Requirements or to courses required by the major. Information on the procedures for applying for life experience credit may be obtained from the Office of Evening, Summer, and Weekend College.



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# **Expenses and Financial Assistance**

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Tuition and Fees Payment of Charges Financial Aid Application Procedures Types of Financial Assistance



# **Student Expenses**

The following chart summarizes student expenses for the 1987-88 academic year which offically begins with the 1987 summer sessions. Students are referred to the course descriptions in this Bulletin for laboratory and other fees associated with particular courses. Inquiries about particular charges should be addressed to the Finance Office.

### **Student Expenses for 1987-88**

Full-time Undergraduate:	Assessment	Each	Semester	Total for Yea
*Tuition (12-18 Credits)	Per Semester	\$	3.215	\$6.430
Room and Board	Per Semester	\$	1.650	\$3,300
Room Damage Deposit	One Time	\$	50	φ <i>σ</i> , <i>σ</i> σσ
General College Fee	Per Semester	\$	60	\$ 120
Activity Fee	Per Semester		_	\$ 75
*Credits above 18 wi	ll be assessed at the rate of	f \$150 p	per credit ho	our.
Part-time Undergraduate:				
Tuition (1-11 <sup>1</sup> / <sub>2</sub> credits)	Per Credit	¢	150	
General College Fee	Per Credit	\$	3	_
Summer Sessions — Underg	raduate:			
Tuition	Per Credit	2	150	
General College Fee	Per Credit	¢	3	-
Summer Board	Per Week	Ф Ф	15	_
Summer Room	Per Week	¢ \$	45	_
Room Damage Deposit	One Time	\$	50	_
Other Fees and Charges:				
Acceptance Deposit:				
Resident Student	One Time	\$	150	
Commuter Student	One Time	\$	75	_
Application Fee	One Time	¢ \$	20	_
Applied Music Fee:	one rine	φ	20	_
Full-time Student	Per Lesson Series	\$	150	
Part-time Student	Per Lesson Series	\$	160	
	a or Bosson Series	Ψ	100	
Audit Fee:				
Full-time Students	No Tuition Charge		-	-
Part-time Students	Per Credit	\$	75	-
Bad Check Charge	Each	\$	10	_
Challenge Exam	Per Credit	\$	20	_
Graduation Fee	One Time	\$	65	_
Installment Payment Plan (Application Fee)	One Time	\$	50	-
Late Registration Fee	Per Semester	\$	10	_

Other Fees and Charges:	Assessment	Each Semester	Total for Year
Mandatory Accident Fee (Commuter/Full-time)	Per Year	onsult i <u>lle</u> stigate Silvestestigate	\$ 70
Medical Technology Fee (During Clinical Training)	Per Semester	\$1,125	\$2,250
Music Major Fee	Per Semester	\$ 20	\$ 40
New Student Orientation Fee	One Time	\$ 50	
Nurses Professional Liability Insurance	Per Year	ans dr <del>ei</del> te eta 10 annher 61 V	\$ 20
Replacement of lost ID cards	Each	\$ 5	n Mail - Anima
ROTC Uniform Deposit	One Time	\$ 25	in if Captrolat
Sickness Insurance (optional): Full-time Student Part-time Student	Per Year Per Semester	_ \$ 16	\$ 46 \$ 32

Students are advised to request a refund of credit balances in their accounts should they desire a refund.

# **Payment of Charges**

Prior to the beginning of each semester, invoices listing all current semester charges and approved financial aid are mailed to all registered students. A minimum payment of one-half of the net bill for each semester must be paid before the start of the semester. The net bill is the balance due after financial aid has been deducted from the current semester charges. The remainder of the Fall Semester bill must be paid by November 1; the remainder of the Spring Semester bill must be paid by March 1.

Any indebtedness to the College which becomes past due jeopardizes the student's enrollment and such students shall not be permitted to register for the subsequent semester or summer-school term. Further, students who fail to pay all indebtedness to the College shall not be permitted to receive any degree, certificate, or transcript of grades. Nor shall they participate in Commencement activities.

All payments are made directly to the Finance Office. Questions concerning charges or payments should be directed to the Coordinator of Student Accounts in the Finance Office.

### **Monthly Payments**

Wilkes College has developed an interest-free, eleven-month installment payment plan (IPP) to help ease the burden of financing an education. Arrangements may be made to finance any amount between \$2,000 and the full cost of tuition and fees. Payments begin in July and end in May of each aca-



demic year. IPP applications for the upcoming academic year are available in April of each year.

Two additional extended payment plans are available through the Knight Insurance Company. The **SCHOOL CHEX** plan allows parents to borrow from a prearranged line of credit and use special checks to pay the College bills when they become due. The **EXTENDED REPAYMENT PLAN** is an insured loan program which allows for the payment of educational expenses over a period of 10 years. Parents may use these programs to cover all or part of the costs of education at Wilkes College and can select the annual amount and the number of years of education to finance. For further information, including application procedures, write or call the Knight Tuition Payment Plans, 53 Beacon Street, Boston, Massachusetts 02108. Telephone (617) 742-3911.

### **VISA/MasterCard**

Wilkes College accepts Visa and MasterCard for tuition and fee payments.

### **Tuition Discounts**

Five tuition discounts are available to Wilkes undergraduates who meet eligibility requirements. For application procedures, contact the Financial Aid Office.

Alumni Discount: Wilkes encourages graduates of the College to continue their education. Therefore, alumni qualify for a 25% discount on tuition for undergraduate courses and a \$10 per credit discount on graduate courses. A written request for this discount should be submitted to the Financial Aid Office at the time of registration.

Alumni Dependent Discount: A 10% tuition discount is given to dependent children and spouses of Wilkes College alumni. This discount applies only to those enrolled full-time.

**Evening Student Discount:** Certain full-time evening school students who are also employed full-time may qualify for this discount.

**Multiple Student Discount:** When two or more members of the same family attend Wilkes at the same time on a full-time basis, a 15% reduction in net tuition is given to all but the first family member.

**Patrolman's Benevolent Association Discount:** A 15% tuition discount is provided for children of members of New York's Patrolman's Benevolent Association. An additional 5% is provided for students who graduated in the top 5% of their high school class.

### **Tuition Exchange**

Wilkes College is a member of the Tuition Exchange Plan which provides limited opportunity for faculty children from one college to enjoy tuition remission benefits at another institution. Students who are dependents of College faculty, administration or staff should consult the Tuition Exchange Liaison Officer at their institution to determine if they qualify for this program.

### Refunds

Students who officially withdraw from courses may be eligible for a partial refund of tuition charges. Resident students who withdraw from the College may also qualify for a refund of meal charges. Refunds are based on the official date of withdrawal as noted by the Registrar.

Any reduction in charges may affect financial aid received for that semester. (See Refund of Financial Aid in the **Consumer's Guide to Financial Aid, Costs, and Charges at Wilkes College**, which is available at the Financial Aid Office.)

Students suspended from the College for disciplinary reasons will forfeit all refunds.

Refunds are available as indicated on the following chart:

### **Refund Schedule\***

Circumstance	Time of Withdrawal	Refund
Academic Year:		
Total Withdrawal	First Two Weeks Third & Fourth Weeks Fifth Week After Fifth Week	80% 60% 40% No refund
Full-time to Part-time and Reduction of Part-time Load	Above time-schedule applies for courses dropped	Charges based on the number of credits after the withdrawal
Room and Board: Room	Anytime during the 15-week semester	No refund
Board	Anytime during the 15-week semester	Prorated from end of official withdrawal week
Summer Sessions	First week of First or Second Sessions and first two weeks of Evening Session After stated period	50% No refund
Weekend College	Through second weekend After second weekend	50% No refund

\*Fees are non-refundable.

and large enough to meet them

### **Financial Aid**

Wilkes College maintains an extensive program of financial assistance for its students in the form of scholarships, grants, loans, and part-time employment. To assist qualified students, the College receives substantial gifts each year from friends and alumni. These funds, combined with those furnished by the federal and state governments, are offered to students in financial aid packages.

Students with questions about financial aid or students seeking applications for financial aid should contact the Financial Aid Office. More detailed information regarding the financial aid programs and requirements is included in the **Consumer's Guide to Financial Aid, Costs, and Charges at Wilkes College,** which is also available at the Financial Aid Office.

### **Application Procedures**

1. Submit the Wilkes College Application for Financial Aid to the Wilkes College Financial Aid Office.

2. Complete the PHEAA/Federal Student Aid Application and forwardit to PHEAA, Harrisburg, PA. The College code is 010204.

3. Students who are not residents of Pennsylvania but whose home state allows their scholarship/grant funds to be used in Pennsylvania must also complete the appropriate state Financial Aid Form (FAF) and forward it to the College Scholarship Service. The College code is 2977.

4. Students who desire to participate in the Guaranteed Student Loan Program and/or the PLUS/SLS Program must also complete the appropriate loan application.

### **Renewal of Financial Aid**

Financial aid is awarded on an annual basis; therefore, students must reapply each year. In addition to showing continued financial need, students must also meet specific academic progress requirements to qualify for renewal. These requirements are explained in detail in the **Consumer's Guide.** 

### **Types of Financial Aid**

Financial aid packages are developed for students on an individual basis and usually consist of one or more of the following types of aid.

Scholarships: Outright gift assistance that is not repayable by the recipient and is usually based on factors other than demonstrated financial need. In addition to those scholarships listed on the chart on page 39, Wilkes College is approved to participate in PHEAA's Scholars in Education Program and in the Federal Congressional Teachers' Scholarship. Also, several academic units at the College have scholarships available to qualified students.

These include the Athletic Department (wrestling only); Biology Department, School of Business and Economics, School of Engineering and Physical Sciences, English Department, History and Political Science Department, Music Department, Nursing Department, Sociology Department, and the Speech, Communications and Theater Arts Department.

Grants: Outright gift assistance that is not repayable by the recipient but is based on demonstrated financial need of the applicant and the family. Many states in addition to Pennsylvania provide financial assistance in the form of grants for residents of their states. Residents of states other than Pennsylvania should contact their high school guidance office for information pertaining to that particular state's aid program. These states include Connecticut, Delaware, Maryland, Massachusetts, Ohio, Rhode Island, Vermont, and West Virginia.

Loans: Financial assistance for which the recipient assumes the obligation to repay the amount of the funds received. Most educational loans provide for payment of principal and interest to begin sometime after the student graduates or stops attending an approved institution on at least a half-time basis. Repayment of the PLUS/SLS and the PHEAA Alternate Loan begin within a short time after funds are disbursed. Two emergency loan funds have been established at the College to help students meet small financial emergencies. The Florence and Joseph A. Goldman Loan Fund and the Robert W. Hall Student Loan Fund provide small interest-free loans which are to be repaid at the earliest practical time, usually 30 days, so that other students may receive needed assistance from these revolving loan funds.

**Employment:** Financial assistance that a student may earn by working on campus in part-time or full-time positions and for which the student is paid in the form of a monthly check. In addition to on-campus employment, the Office of Career Services operates a JOB LOCATION DEVELOPMENT PROGRAM (JLD) to help students obtain employment opportunities off-campus. The operation of this program is funded jointly by the federal gov-ernment and the College. Students are paid by the employer for whom they work. For more information, interested students should contact the Office of Career Services.

### **Veterans Assistance Programs (VA)**

This special program provides a wide range of benefits to those who have served in the Armed Forces and in some cases to the dependent children of veterans. Interested persons should contact their local VA Office to obtain information concerning GI Education Assistance, Veterans Education Programs, Veterans Rehabilitation, Veteran Educational Loans, the Veteran Work-Study Program, and other sources of Veterans Assistance. The College also has a Veterans Affairs Office to assist students in obtaining these benefits.



# **Other Non-Institutional Awards**

There are literally hundreds of sponsors across the country, each of whom offers scholarships, grants, and/or loans to students pursuing higher education. While it is not possible to list them all here, reference publications are available in college and high school libraries that identify these programs and give application instructions and procedures.

# **Financial Aid for Part-time Students**

The Pell Grant, Guaranteed Student Loan, PLUS/SLS Loan, PHEAA HELP Guaranteed Student Loan and the PHEAA-HELP Alternate Loanar available to part-time students. Interested students must complete the PHEAA/Federal Student Aid Application and the appropriate loan applica-tions in order to apply for these programs. In addition to financial need, eli-gibility for the Pell Grant program is based on enrollment status. Students registered for at least 6 credits but less than 9 credits qualify for approx-mately one-half of the full-time award and those registered for at least 9 credits but less than 12 credits qualify for approximately three-quarters of the full-time award the full-time award.

**Financial Aid for Students Seeking a Second Degree** Only the Guaranteed Student Loan Program, the PLUS/SLS Program, the PHEAA-HELP Guaranteed Student Loan Program and the PHEAA HELP Alternate Loan Program are available to students seeking a second degree. Both the PHEAA/Federal Student Aid Application and the appro-priate Ioan application(s) must be completed to determine eligibility for these programs



Summary of Financial Assistance Programs\*

Program	Average Annual Award	Application(s) Required	Filing Deadline
		SCHOLARSHIPS	
Trustee Scholarships Presidential Scholarships Dean's Scholarships Achievement Scholarships Leadership Scholarships Room & Board Scholarships	\$5,804 \$1,000 \$500 \$841 \$1,475 \$2,462	PHEAA/Federal Student Aid Application and Wilkes College Financial Aid Application	Upperclass student deadline — May 1, 1987 Incoming student deadline varies — Contact Wilkes College Admissions Office
Wilkes Named Scholarships Transfer Student Scholarships	\$1,181 new		Design of the second seco
ROTC Scholarships	\$6,150	Contact the Wilkes College ROTC Office	Contact ROTC Office
		GRANTS	
Pell Grant	\$1,316	PHEAA/Federal Student Aid Application or CSS's FAF or Federal Student Aid Application	May 1, 1988
PHEAA Grant	\$1,375	PHEAA/Federal Student Aid Application	May 1, 1987
SEOG Grant Wilkes Need-Based Grant Wilkes Act 101 Grant	\$ 812 \$1,117 \$1,796	PHEAA/Federal Student Aid Application and Wilkes College Financial Aid Application	Upperclass student deadline — May 1, 1987 Incoming student deadline — Rolling basis as long as funds are available
Office of Vocational Rehabilitation Grant	\$2,895	Contact the Office of Vocational Rehabilitation	Contact Office of Vocational Rehabilitation
		LOANS	
Carl Perkins Loan (NDSL) Nursing Student Loan Gulf Oil Loan Rulison Evans Loan	\$1,233 \$1,374 \$1,000 \$1,000	PHEAA/Federal Student Aid Application and Wilkes College Financial Aid Application	Upperclass student deadline — May 1, 1987 Incoming student deadline — Rolling basis as long as funds are available
Guaranteed Student Loan PHEAA-HELP Guaranteed Student Loan	\$2,285 \$1,457	Guaranteed Student Loan Application and PHEAA/Federal Student Aid Application	Six to eight weeks prior to need for loan proceeds
PLUS/Supplemental Loan PHEAA-HELP Alternate Loan	\$2,687 \$3,681	PLUS/Supplemental Loan Application PHEAA-HELP Loan Application	Six to eight weeks prior to need for loan proceeds Six to eight weeks prior to need for loan proceeds
		EMPLOYMENT	
Federal College Work-Study Program	\$1,247	PHEAA/Federal Student Aid Application, Wilkes College Financial Aid Application, and Wilkes College Application for Student Employment	Prior to beginning work on campus
Institutional Employment	\$1,467	Wilkes College Application for Student Employment	Prior to beginning work on campus

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Transfer Student Scholarships	new \$6,150	Contract the William College DOTC Office	Contract ROTC Office
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# Academic Information

The Calendar Part-time, Graduate and Continuing Education The Curriculum The Degrees Academic Policies and Procedures Academic Requirements Graduation Requirements



# **Academic Information**

### Calendar

The academic year at Wilkes College consists of two semesters. The Fall Semester normally begins in early September and always concludes with final examinations before the holidays in December. The Spring Semester begins in early to mid-January and closes with a final examination period in May. Commencement exercises are scheduled later in May at the conclusion of the academic year.

The College also provides a broad range of courses in three different summer sessions. The first summer session begins early in June and concludes in mid-July; the second session begins in mid-July and ends in late August. An eight-week evening session complements these two day-school summer sessions; the evening session begins in early June and ends in early August.

### Part-time, Graduate and Continuing Education Part-time Studies

The College welcomes part-time undergraduate students into all of its regular sessions. It has also established the Evening College and the Weekend College to maximize scheduling possibilities for students who cannot attend day classes. Majors in several disciplines are offered in the Evening College and Weekend College, and students may utilize both options, in addition to day-school, as their commitments and interests change. Many students complete their degree requirements in one or the other of these special formats.

Non-degree students may be admitted to classes which they are qualified to take by reason of their maturity, previous education, and work experience. Secondary school training is desirable, but not necessary, provided the student is qualified to follow such special courses of instruction. Inquiries about part-time studies should be directed to the Director of the Evening, Summer, and Weekend College.

### **Evening College**

The Evening College is designed to meet the needs of those students who cannot attend day-school but wish to pursue a degree. Courses normally meet one or two nights per week during the academic year and three nights per week during the eight-week evening summer session. A majority of the degree programs at the College are available in the Evening College. Students interested in the Evening College format should arrange to meet with the Director of the Evening, Summer, and Weekend College to plan a course of study suitable to their needs.

### Weekend College

Wilkes' Weekend College provides the upper-division courses that will permit graduates from Keystone Junior College and other two-year institutions to complete their bachelor's degrees by taking courses strictly on weekends. Transfer students from other accredited institutions are also welcome. Those students beginning as freshmen in the Weekend College will apply for admission through Keystone Junior College.

The courses meet every third weekend on the campus of Keystone Junior College, La Plume, Pennsylvania (10 miles west of Scranton on Route 6/11). Residence hall facilities are available on a first-come, first-served basis to students in both the Keystone and Wilkes programs. Students may carry as many as 9 credits in each of three different sessions arranged over the calendar year. Students should be able to complete their baccalaureate degrees in slightly more than two calendar years. Weekend College students are eligible for federal financial aid (PELL grants) and veteran's benefits, where applicable. Inquiries about the Weekend College should be directed to the Director of the Evening, Summer, and Weekend College.

### **Graduate Studies**

The Division of Graduate Studies offers a wide range of quality programs leading to master's degrees. Degree programs are available in the fields of Business Administration, Biology, Chemistry, Earth and Environmental Sciences, Education, Engineering, Health Service Administration, Mathematics, and Physics. The graduate programs feature quality faculty academicians and professionally established teacher-practitioners, outstanding facilities, and flexible scheduling for both full-time and part-time graduate students. Inquiries about graduate studies should be addressed to the Office of Graduate Studies. A separate Graduate Bulletin, which describes the graduate programs in detail, is available on request.

### **Continuing Education**

In addition to courses for credit, Wilkes College provides a dynamic nondegree Continuing Education program which responds to the changing needs and interests of the community. This program provides training and development service to business, industry, government, associations, professionals, and individuals. Through the use of public seminars, in-house presentations and conferences, the Continuing Education Division offers programs in supervisory training, management development, executive development, research and continuing professional education. Many of the programs sponsored by the division provide Continuing Education Units (CEU's) for students who want or need formal documentation of their work. Inquiries about the offerings of the Continuing Education Division should be addressed to the Office of Continuing Education.



### Degree Programs

Wilkes College offers undergraduate programs leading to the Bachelor of Arts, Bachelor of Science, Bachelor of Fine Arts, and Bachelor of Music degrees. Degree programs have been carefully designed so that students may meet the entrance requirements of graduate and professional schools, but they also are structured to ensure that all Wilkes undergraduate degrees represent the broad and solid base of general education that is central to responsible participation in human affairs.

### **Goals of the Educational Program at Wilkes College**

Wilkes College is committed to the liberal education of men and women who value learning for its own sake throughout their lives and participate responsibly as enlightened members of society. The institution's curriculum is designed to stimulate the intellectual, emotional, social, and physical development of each student. Our principal goals are to familiarize students with the content of the various realms of human inquiry, facilitate the integration of their knowledge into a unified whole, provide opportunities for them to acquire a depth of understanding in at least one field of study, and develop their unique capabilities. We believe that every liberally educated person:

- thinks critically, analytically, and creatively;
- communicates effectively;
- cultivates aesthetic sensibilities;
- explores ethical, intellectual, and social values;
- makes ethical judgments based upon a consciously developed moral value system;
- understands and appreciates cultural diversity from historical and contemporary perspectives;
- appreciates the dynamics of an individual functioning within a complex society;
- understands scientific principles and their relationship to technology and culture;
- applies quantitative reasoning in the presentation and interpretation of data;
- pursues life-long recreational activities, acknowledging the importance of physical well-being;
- correlates these goals of liberal learning with career and professional perspectives.

### **The Curriculum**

The Wilkes Curriculum has three components. The first is called the Core Curriculum because it provides the common foundation in the liberal arts and sciences of all of the bachelor's degrees awarded by the College. Through the Core, all students are introduced to the common life of learning, reflection, and discussion in which they are expected to share during their college years. Normally, students complete their Core Requirements during their first two years.

A second component of the Wilkes Curriculum is the major. This component provides for in-depth study of a field of specialization. The requirements for each major are found in this Bulletin under the departmental listing. This part of the Curriculum is usually undertaken during the junior and senior years.

The third component of the Wilkes Curriculum enables the student to pursue personal interests, to explore new areas of learning, or to pursue a minor or a second major. This component is composed of elective courses, which are usually taken during the student's junior or senior years.

### The Core Curriculum: The First Curricular Component

The General Core Requirements consist of a broad spectrum of courses in the liberal arts and sciences designed to enhance intellectual, emotional, social, and physical development. These courses, which are central to a liberal education, are required of all Wilkes College students in the B.A., B.F.A. and B.S. programs except the B.S. programs in Engineering and Medical Technology. Students in the Bachelor of Music Program take 18 credits in the Humanities, including English 101-102; 12 credits in the Social Sciences, including Psychology 101; and 6 credits in Mathematics/Science.

The General Core Requirements for all programs follow. Students are urged to use this outline of the Core Requirements as an explanation of the **Recommended Course Sequence** provided for each major in this Bulletin. With the exception of English 101-102 and Physical Education, which are specifically designated, the designation "Core Requirements" in the **Recommended Course Sequence** for each major is a reference back to this statement of the Core.

It is the student's responsibility to insure that **all** College requirements, including the Core Requirements, are satisfied.



### **Core Requirements**

### Skills

### English 101-102 (or competency) 0-6 credits Students who demonstrate competency in writing may be exempted from English 101 and 102.

Mathematics (or competency) 0-4 credits Students who scored less than 450 in mathematics on the SAT must take mathematics unless they scored 50% or higher on the Wilkes Mathematics Placement Test.

### **Computer Literacy** 0-6 credits All Wilkes graduates are required to have some experience in the use of a

computer as a problem-solving tool. This requirement may be fulfilled by:

- a. passing any credit course in computer science, or
- b. passing Mth 101-102, or
- c. petitioning the Department of Mathematics and Computer Science for a waiver on the basis of previous work with the computer. The student may be required to write a program in a language of his/her choice before the waiver is granted.

### **Physical Education**

0 credits This involves a four-semester requirement in physical education. Students will participate in different learning experiences each semester.

### Humanities

### Any three of the following:

two courses in literature

English 151-152 are the core requirements. Students may substitute other courses, but must respect prerequisites or secure departmental permission.

two courses in a foreign language

Students with two years of high school study in a foreign language should begin at 203 or higher. Students may elect Foreign Language 101-102, but must complete a sequence in a single language through at least the 204 level if using language to fulfill the humanities requirement.

### two courses in history

Normally, the 101-102 sequence will fulfill the core requirements in history. However, students may substitute advanced courses with the written approval of the instructor, or the chairman of the History and Political Science Department.

two courses in philosophy

### Arts

Any three credits in Art, Theater Arts, or Music

### **Social Sciences**

Any four courses in Economics, Political Science, Psychology, Sociology or Anthropology with no more than two in any one discipline.

**Mathematics/Science** 

### Any two of the following (at least 12 credits)

- a. two courses in Mathematics or Computer Science except that
  - 1. Mth 100 must be followed by Mth 105, Mth 111, or Mth 150. 2. only one of CS 115 (Survey of Computers and Data
  - Processing), CS 123 (Fortran), and CS 124 (Cobol) may be counted in this requirement.
- b. two courses in biology
- c. two courses in chemistry
- d. two courses in earth and environmental sciences
- e. two courses in physics

Courses required in one's major may also be used to fulfill core requirements.

### Total

### Selection of a Major: The Second Curricular Component

Each student must complete a major in a discipline or area of concentration in order to be graduated from Wilkes College. Specific requirements for each major are described in detail in the departmental listing in this Bulletin.

### **Bachelor of Arts Degree — Majors**

Majors in Bachelor of Arts degree program may be selected from the following subject areas:

Art	English	Philosophy
Biology	French	Physics
Chemistry	German	Political Science
Communication Arts	History	Psychology
Computer Science	Individualized Studies	Sociology
Earth and Environmental	International Studies	Spanish
Sciences	Mathematics	Speech Pathology
Economics		

### **Bachelor of Science Degree — Majors**

Majors in the Bachelor of Science degree program may be selected from the following subject areas:

> Accounting Biology **Business** Administration Chemistry **Computer Information** Systems **Computer Science** Earth and Environmental Sciences

**Electrical Engineering Engineering Management Environmental Engineering** Individualized Studies Materials Engineering Mathematics Medical Technology Nursing Physics

3 credits

18 credits

12-16 credits

45-65 credits

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12 credits



### **Bachelor of Fine Arts Degree**

Students in the Bachelor of Fine Arts program may pursue more concentrated study in specific studio disciplines in the visual arts.

### **Bachelor of Music Degree**

Students in the Bachelor of Music program choose a major in either performance or music education. Students may elect to complete both majors with additional course work and one additional semester for the completion of student teaching.

### **Elective Credits: The Third Curricular Component**

The third component of the Wilkes Curriculum, after the Core Requirements and the Major Requirements, is composed of elective courses. Students choose elective courses for a variety of reasons: to pursue an interest or to meet requirements for admission to graduate or professional schools or to hone particular skills, for example. Some students use this component of the curriculum to add to their credentials.

### **Selection of a Minor**

One of the common reasons students select elective courses is to complete a minor in a field different from the major. Although not required for graduation, minors are formally recognized on the student's transcript and may enhance a student's credentials. Students should consult the departmental listing in this Bulletin to review the specific requirements for formal recognition of a minor field in particular disciplines. They must complete the appropriate form in the Registrar's Office should they decide to complete a minor.

### **Teacher Education**

Students who wish to prepare for a teaching career select an appropriate major and use their elective credits to meet teacher-certification requirements. A list of the courses needed for certification is provided in the departmental description of the Education Department in this Bulletin. Students planning a teaching career are urged to seek counseling in the Education Department early in their first semester at the College.

### **Cooperative Education**

Cooperative Education, another possible use of elective credits, is a program that formally integrates a student's studies with productive work experiences in employing organizations. Students may alternate semesters of full-time study and full-time professional work experience or they may combine work and study in the same term; in either case, students earn academic credit and, in many cases, a salary while gaining valuable experience in a work environment. Internships are available throughout the United States in the summer, spring and/or fall, and internship placements are readily available to eligible students. Students are urged to explore the various possibilities with the Director of Cooperative Education shortly after their arrival on campus.

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### **Study Abroad Program**

The Study Abroad Program, a part of the International Studies major and an attractive elective option to students from many other majors, enables students in good academic standing to earn academic credits at overseas institutions which can be applied toward the requirements for a bachelor's degree at Wilkes College. Overseas study may be for a period of a year, a semester, or a summer and is generally undertaken by students who have achieved junior standing at Wilkes. A wide variety of curricular offerings, international internships, cultural settings, and living situations are available in over 30 countries throughout the world. Students interested in this option should contact the Study Abroad Coordinator in the Department of Sociology and Anthropology.

### **Double Major**

Students may choose to use their elective credits to complete a second major. The student must declare intent to graduate with a double major by completing the appropriate form at the Registrar's Office. It is the student's responsibility to secure the approval of the chairmen of both departments to ensure that all requirements of the two majors are fulfilled.

### Second Baccalaureate Degree

Students who hold a bachelor's degree with a major in one discipline from this or another accredited institution may be awarded a second baccalaureate degree in another discipline. Candidates for this second degree must earn at least thirty credits at Wilkes College beyond those required for the first degree.

A candidate for a second degree must complete all requirements for the degree at Wilkes College. For this purpose credits may be transferred from the institution which granted the first degree. However, approval of transfer credit for any course required by the proposed major and of the overall program to be followed must be obtained from the Dean of Admissions and, also, from the chairman of the proposed major department.



# **Academic Policies and Procedures**

Wilkes College has adopted a number of policies and procedures governing its academic programs. Many of these standards are generally described in this Bulletin. Students are advised to consult with their advisors regularly to obtain more specific information on particular policies or procedures or to clarify matters that are unclear.

### Registration

Incoming freshman and transfer students register during the orientation sessions that precede each semester. All students are expected to preregister with their advisors and to register on the dates specified on the College Calendar; late registrants will be assessed a late fee. Additional information on registration procedures and the exact dates of the orientation sessions can be obtained from the Office of Admissions.

### Attendance

Attendance at all classes is expected. Repeated absence is deemed a sufficient cause for failure.

After five consecutive absences from a class, a student may be readmitted to the class only by action of the appropriate counseling dean and the department chairman concerned.

### **Student Load**

Students may register for as many as 18 credits in a semester. No students shall be allowed to carry an overload (i.e. credits in excess of 18) without the written approval of their advisor and the appropriate counseling dean. An overload will be permitted only for students with a minimum grade point average of 3.00 or for those with special need.

### Wilkes/King's Cross-Registration

Wilkes College and King's College offer their students an opportunity to cross-register for courses at either institution. The intention is to broaden the range of courses available to the student; only courses not offered at the college where the student is enrolled are open for cross-registration. Courses carry full credit and grade value and are considered as part of the student's regular course load; no additional tuition charge is made. Students register through the Registrar at the College where they are enrolled as degree candidates. Interested students should confer with their Registrar for further details.

### **Auditing Courses**

Auditing courses is a practice designed primarily for the purpose of allowing a student to expand his/her educational opportunities beyond the limitations imposed by courses taken in fulfillment of normal graduation requirement.

Courses may be taken on an Audit basis only if formal registration is completed prior to the end of the first week of the semester. Permission of the course instructor will be required. Students withdrawing from a course who wish to attend additional classes in that course may do so with the permission of the instructor. However, these students will receive a grade of "W" (withdrawal) in all cases.

Students auditing courses will maintain all standards, including attendance, required by the instructor. Students who do not maintain these standards will not be awarded audit recognition. All relevant fees will be charged.

### **Change of Major**

Students who wish to transfer from one department to another shall obtain the approval of the advisor and the department chairman. The student shall satisfy the curriculum requirements of the Bulletin in force at the time of transfer. Change-of-major forms are available in the Registrar's Office and the Student Affairs Office.

### **Transfer of Credits into Wilkes College**

Wilkes students desiring to take courses at another college during any academic term must secure prior approval from the Director of the Evening, Summer, and Weekend College. The student must earn a grade of 2.00 or higher for the work to be credited toward graduation. All students must complete the last 30 credits in residence at the College.

Grades earned for transfer credits are not included in the calculation of grade point averages.

### **Withdrawals**

A student may withdraw from any course through the sixth week of instruction, notifying his instructor, his advisor, and the appropriate counseling dean of his intentions prior to withdrawal. This process must be completed and all necessary paperwork placed in the hands of the Registrar prior to the completion of the sixth week of instruction. After the sixth week, students may withdraw only with the written approval of the course instructor, the faculty advisor, and the appropriate counseling dean. Students not fulfilling these requirements and not satisfactorily completing the course will receive a grade of "0".



No student who has been advised to withdraw from the College's day school for academic reasons will be permitted to register in the Evening or Weekend College without approval of the Academic Standards Committee.

### **The Family Educational Rights and Privacy Act of 1974**

In accordance with the provisions of "The Family Educational Rights and Privacy Act of 1974," students, upon request, will be given access to all their evaluative records which have been established by Wilkes College. Such records might typically include those maintained by the Office of Career Services, the Health Services Office, the Registrar's, and the Deans' Offices. These records will be open to inspection in the presence of the appropriate college official. Students wishing to review their files must make an appointment at least one day in advance.

### **Academic Requirements**

### Grades

The primary purpose of any marking system is to inform the student of his achievement. Marks also aid in evaluating students for the purpose of recommendation. Grade reports are sent to students at the end of each term. Mid-term reports are sent if the work is unsatisfactory.

Eight numerical grades are given for academic work:

Grade	Interpretation
4.00	Academic achievement of outstanding quality.
3.50	Academic achievement above high quality.
3.00	Academic achievement of high quality.
2.50	Academic achievement above acceptable quality in meeting requirements for graduation.
2.00	Academic achievement of acceptable quality in meeting requirements for graduation.
1.50	Academic achievement above the minimum quality required for credit.
1.00	Academic achievement of minimum quality required for credit.
0.00	Academic achievement below the minimum required for course credit.
P	Passing, no credit.
W	Withdrawal.
N	Audit, no credit.

"X," "Inc.," means that the student received an incomplete grade. Incompletes will be granted to students who, because of illness or reasons beyond their control, have been unable to satisfy all course requirements including the final examination. When such a grade is given, the incomplete work must be made up by or before the end of the fourth week following the last day of the examination period. If the incomplete is not removed within this time, or an extension of time granted by the instructor who gave the grade or by some other authorized person, and the Registrar's Office so notified, the grade will be changed to a zero on the student's record.

### **Course Credits and Grade Point Average**

Each course at the College is assigned a specific number of credits. For example, English 101 is a 3-credit course and Chemistry 115 is a 4-credit course. Usually, credits assigned to the course are determined by the number of hours that the class meets per week. The number of credits carried by each course is a major factor in the calculation of a student's grade point average.

Below is an example illustrating the method used to compute point aver-

Course	Credit Hrs. Carried	Grade	Points	Credit Hrs. Passed
Bio 103	3	4.00	12	3
Eng 101	3	0.00	0	0
Fr 101	3	2.50	7.5	3
Hst 101	3	1.50	4.5	3
Mus 101	3	3.00	9	3
Total credit hours carried	15			
Total credit hours passed				12
Total points earned			33	
Average $33 \div 15 = 2.20$				

Notice that the student has accumulated 12 credits toward graduation. The zero grade in English means that the student must repeat that course.

Averages are cumulative; the work of each semester will be added to the total. To graduate a student must have at the end of the senior year at least a 2.00 average for all courses and a 2.00 average in the major field.

Transfer credits are not included in the calculation of grade averages.

### **Dean's List**

The faculty gives recognition for high quality work. Students on the Dean's List, published at the end of each term, must obtain a grade point average of 3.25 or higher for all courses taken. Students taking fewer than twelve credit hours will not be eligible for the Dean's List.

### **Academic Probation and Ineligibility**

Freshmen, defined as students who have attempted fewer than thirty-six credits, must maintain a 1.70 in both their major and cumulative grade point


averages. All other students must maintain a minimum 2.00 in both their major and cumulative grade point averages. Any student who falls below the minimum average required will automatically be placed on academic probation. At the end of the first semester, a student whose grade point average is less than 0.5 may be declared academically ineligible.

The Academic Standards Committee meets at the end of each semester and the second summer session to review the record of any student who does not meet these averages, which have been established by the faculty. The Committee may place a student on academic probation; may declare a student ineligible to continue course work at the College; or may declare a student ineligible to continue unless the student's major is changed.

Students placed on academic probation may be restricted in the number of credits they take the following semester. The Academic Standards Committee may impose additional restrictions and requirements in individual cases when it determines such restrictions and requirements are in the best interest of the student and the College. Such restrictions may include the student's participation in extracurricular activities.

Students who have been declared academically ineligible are not allowed to enroll in course work at the College for a period of one year. To be considered for readmission such students need to apply for readmission through the Dean of Student Affairs Office and be approved for readmission on a probationary status by the Academic Standards Committee.

Any decision of the Academic Standards Committee may be appealed by the student. Appeals must be presented to the Committee either in person or by letter, and should include good and sufficient reasons for appealing.



## **Graduation Requirements**

It is the student's responsibility to meet graduation requirements. All candidates for degrees are expected to be present at Commencement. If circumstances prevent their attendance, students must apply to the Dean of Student Affairs for permission to take the degree or certificate *in absentia*.

The faculty has approved the following requirements which students must satisfy in order to be eligible for graduation:

- 1. They must successfully complete a minimum of 120 credit hours.
- 2. They must satisfy all requirements in their major(s). (Requirements for graduation vary from department to department. See the appropriate section in this Bulletin for the number of credit hours required by each major.)
- 3. They must complete all subjects required for the degree as stated in the Bulletin in force at the time of admission to the program or any subsequent Bulletin. All students must complete the last 30 credits in residence at the College.
- 4. They must obtain a minimum cumulative average of 2.00 for all courses.
- 5. They must obtain a minimum cumulative average of 2.00 for all subjects within their major.
- 6. They must obtain a minimum cumulative average of 2.00 for all subjects within the chosen minor(s).
- They must satisfy all requirements pertaining to the physical education program.
- 8. They must demonstrate competence in written and spoken English.
- 9. They must demonstrate competence in Mathematics and computer literacy.

No student shall be graduated until all financial obligations to the College have been satisfied.

#### Honors

The granting of honors at Commencement is based upon the entire academic record achieved by the student.

Transfer students must have completed a minimum of 60 credits at Wilkes College with the cumulative average equal to the honors received to be considered for honors. The entire academic record, including grades earned at Wilkes College and any other institution attended, is used to compute the final cumulative average for honors.

**Requirements for Honors are:** 

Summa Cum Laude	3.80
Magna Cum Laude	3.50
Cum Laude	3.25





# Academic Programs

# The Departments in The College of Arts and Sciences

Aerospace Studies Art Biology Chemistry Education History and Political Science Language and Literature Mathematics and Computer Science Music Nursing Philosophy Physical Education and Health Psychology Sociology and Anthropology Speech, Communications, and Theater Arts

## The Departments in The School of Business and Economics

Accounting Business Administration Economics

The Departments in The School of Engineering and Physical Sciences

Earth and Environmental Sciences Engineering Physics

ing the large international accounting firms that have offices here one world. It common States The accounting entrechter is a demanding and rigorithed offices perfence. The technical bird ground of study required does not allow flexibility in the selection of elective courses pushed the base consever, both communication and computer Suils are now an integral part each accounting course offering The isoliticity in the term.



The School of Business and Economics

## ACCOUNTING

Associate Professor Broadt, Assistant Professors Chisarick, Cordora, Croop.

#### Total minimum number of credits required for a B.S. degree -126. Total minimum number of credits required for a minor -24.

The School of Business and Economics offers a major in Accounting providing the necessary background for an entry-level professional position in public, private or governmental accounting. Students receive the necessary educational background to successfully compete for placement in graduate schools, professional schools, and licensing as certified public accountants or certified management accountants. Those choosing a career in administration or management also receive adequate managerial training for future leadership roles in the private, the industrial, or the governmental sector.

The accounting curriculum parallels the business administration major with a combination of three or four educational levels. A comprehensive study of the arts, sciences, mathematics, communications, and humanities provides a basic core of education. This core, which is a common experience to all majors, is the basis for a well-rounded, well-educated person. The second level of educational experience provides a broad general background in statistical, financial, and managerial techniques. Subjects included in this area of study are finance, economics, management, and computer science. The final level of basic educational skills relates to the field of financial and managerial accounting. A rigorous thirty credit hours are devoted to current accounting theory and applications through the use of texts, cases, and practical experience. This sequence begins with introductory level accounting and progresses through intermediate, tax, cost, auditing, and system components. A fourth level of education is also available. Students with the classroom background described may participate in a practical experience by applying for an accounting internship. Most students are placed with public accounting firms where it is possible to readily experience a broad range of business problems in the shortest possible time-span. However, for students with a more specialized interest, accounting internships are also available in banking, industry, and with the government. This program has been available at Wilkes College for the past thirty years and all qualifying applicants have been placed in positions of their choice, including the large international accounting firms that have offices throughout the world.

The accounting curriculum is a demanding and rigorous educational experience. The technical background of study required does not allow much flexibility in the selection of elective courses outside the basic core. However, both communication and computer skills are now an integral part of each accounting course offering. The individual completing this program is

#### The School of Business and Economics

educationally qualified to meet any state's legal requirements as a candidate for the certified public accounting examination.

Students from many other disciplines, even those unrelated to business or economics, have been inclined to select an accounting minor along with their major field of study. The minor provides the student with enough back-ground to begin with professional entry-level employment while developing a background in his chosen field of study. Upon completion of six credit-hours of prerequisites (Acc 121-122), an additional eighteen credits are required. The minor program would be composed of Acc 211-212, and twelve additional credits in accounting.

Accounting alumni completing the program described above can now be found in accounting firms ranging in size from those of individual practitioners to international accounting firms with clients throughout the world. Many of our graduates who began their careers with such firms have since moved into leadership positions with the federal government or private industry. Selecting the accounting major in the School of Business and Economics at Wilkes College will provide the individual with the combined educational skills to be a future success as a leader in the accounting profession, industry, or in government.

This educational experience, with its liberal roots, will also provide a responsible individual with an appreciation of the social and cultural environment reflective of a true professional.

#### **Recommended Course Sequence for a Degree in Accounting**

#### **Major in Accounting First Semester** Second Semester Eng 101 Composition I 3 Eng 102 Composition II 3 12 Core Requirements' CS 115 Survey of Computers 3 PE 100 Activity 0 **Core Requirements** PE 100 Activity 0 15 15 **Third Semester Fourth Semester** Acc 121 Accounting I Acc 122 Accounting II 3 Ec 101 Economics I 3 Ec 102 Economics II 3 **Core Requirements** SCT 101 Public Speaking 3 9 9 PE 100 Activity **Core Requirements** 0 PE 100 Activity 0 18 15

\*Mth 101 and 102 or a higher sequence required of all accounting majors.



#### Fifth Semester Acc 211 Intermediate Acc I Acc 221 Taxes

Ec 231 Statistics I BA 209 Business Correspondence BA 225 Finance BA 231 Business Law I

### **Seventh Semester**

Acc 231 Auditing Acc 233 Cost Accounting Acc 251 Senior Seminar\*\* (prerequisite for Acc 252) Ec 201 Money and Banking BA 251 Management

\*Accounting electives.

ACC 121. INTRODUCTORY FINANCIAL ACCOUNTING Three credits Introduction and development of the overall accounting function from analysis of business transactions and their systematic recording to the interpretation of the resulting financial statements. Fee: \$20.

3

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18

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Prerequisite: Sophomore standing or permission of instructor.

ACC 122. INTRODUCTORY MANAGERIAL ACCOUNTING Three credits Introduction to the accounting requirements necessary in a management environment and the uses of accounting data for planning and control of business and non-profit activities. Fee: \$20. Prerequisite: Acc 121.

ACC 211. INTERMEDIATE ACCOUNTING I Three credits A comprehensive analysis of the accounting process and the financial statements. Intermediate problems pertaining to cash, receivables, inventories, current liabilities, and investments in stocks.

Prerequisite: Acc 122.

#### ACC 212. INTERMEDIATE ACCOUNTING II

A continuation of Intermediate Accounting I. Intermediate problems pertaining to investments in bonds and funds, plant and equipment, intangibles, long-term liabilities, and stockholders equity; financial statement analysis and fund and cash flow reporting. Prerequisite: Acc 122.

ACC 221. TAXES The preparation of federal income tax returns for individuals and businesses based on the cur-

rent law, regulations, and current decisions; research of tax law, regulations, and current decisions; research of tax law using various tax reference services and computer data-base access. Prerequisite: Acc 122.

#### The School of Business and Economics

18

12

Three credits

**Three credits** 

#### Sixth Semester

Acc 212 Intermediate Acc II Acc 224 Advanced Taxes\*\* Ec 232 Statistics II BA 226 Investments BA 232 Business Law II Free Elective

**Eighth Semester** 

Acc 234 Accounting Systems\*\* Acc 244 Advanced Accounting Acc 252 Internship\*\* Free Elective

#### The School of Business and Economics

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Three credits

Three credits ACC 224. ADVANCED TAXES Tax accounting for corporations, partnerships, and fiduciaries, including corporate organization, reorganization, distributions and liquidation. Preparation of federal corporate, partnership, and fiduciary returns.

Prerequisite: Acc 221.

#### ACC 231. AUDITING

**Three credits** An analysis of modern auditing concepts involving staff organization, professional ethics and legal responsibility, internal control, audit programs and working papers, and original record examination.

Prerequisite: Acc 212.

#### ACC 233. COST ACCOUNTING **Three credits**

Principles and practices of cost accounting including a study of job, process, and standard cost systems. Informative systems design, budgeting, variance analysis, and direct costing concepts are covered.

Prerequisite: Acc 212.

## ACC 234. FINANCIAL AND MANAGERIAL

ACCOUNTING SYSTEMS Three credits Review of the systems used to accumulate and report accounting information with emphasis on computer applications. Prerequisite: Acc 212.

ACC 244. ADVANCED FINANCIAL ACCOUNTING Three credits A comprehensive review and analysis of various accounting problems relating to corporate consolidations, partnerships, governmental units, non-profit organizations, estates, trusts, and bankruptcies.

Prerequisite: Acc 212.

ACC 251. SENIOR SEMINAR IN FINANCIAL ACCOUNTING **Three credits** Current topics in financial accounting and corporate reporting are reviewed. Case studies requiring generally accepted accounting principle applications will be an integral part of the topics covered.

Prerequisite: Acc 212.

which are not covered in other courses.

#### ACC 252. ACCOUNTING INTERNSHIP

This course provides on-the-job accounting experience for accounting majors. A minimum of 240 hours is provided with either certified accounting firms, government agencies, or private industry. Internships are offered on a competitive basis following student interviews with interested firms and agencies. Students not obtaining an internship must substitute a 200- or 300level course in the School of Business and Economics. (All courses listed through the seventh semester should be taken prior to this course.)

CC 395-396. INDEPENDENT RESEARCH	One to three credits
CC 397. Seminar	One to three credits
CC 198/298/398. TOPICS	Variable credit



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## **AEROSPACE STUDIES** (Air Force ROTC)

Lieutenant Colonel Billings, Professor, Chairman; Assistant Professors Captain Lynn, Major Newton, Captain Zimmerman.

The Air Force ROTC program at Wilkes College allows students to earn commissions as Air Force officers while they obtain a college degree. Students may choose to enroll in either the four-year or two-year program or any variation thereof. A four-year cadet enrolls in the General Military Course (GMC) during the first two years of school and the Professional Of ficer Course (POC) during the last two years. The GMC is open to all incoming freshmen; sophomores who can program all four GMC courses in their sophomore year (the dual-enrollee program); or those who have four years of college remaining. GMC STUDENTS INCUR NO MILITARY OBLIGATION UNLESS THEY RECEIVE AN AFROTC SCHOLAR-SHIP. The POC is available to students with at least two academic years remaining at either the undergraduate or graduate level or a combination of the two. Students interested in the POC program must apply for entry EARLY IN THEIR SOPHOMORE YEAR. To enter the POC, students must pass a physical, an officer qualification test, and have an acceptable academic rating. Four-year cadets must complete a four-week field training program; POC applicants must complete a six-week field training program during the summer before POC entry. Four semester hours of credit may be earned in the GMC and twelve semester hours in the POC. There is also a one-semester-hour course for pilot and navigator candidates. POC cadets earn a \$100per-month, tax-free subsistence allowance during the academic year and incur a military obligation. STUDENTS MAY ALSO COMPETE FOR FULL-TUITION AFROTC SCHOLARSHIPS. WILKES COLLEGE OF FERS FREE ROOM AND BOARD TO ALL FOUR-YEAR AFROTC SCHOLARSHIP WINNERS, AS WELL AS TO STUDENTS FROM OTHER COLLEGES WHO WIN AFROTC SCHOLARSHIPS AND WHO CHOOSE TO TRANSFER TO WILKES. Students who complete the POC and graduate are commissioned as Second Lieutenants in the USAF Reserve. They serve on active duty in a specialty they have chosen, consistent with Air Force needs. Qualified students can compete for jobs as pilots, navigators, nurses, engineers, missile officers, and in many other fields. Regardless of your degree area, the Air Force can find a place for you. For more information on the Air Force ROTC program at Wilkes, call, toll-free, 1-800-572-4444, ext. 371 (in state) or 1-800-537-4444, ext. 371 in adjacent states.

## **Supplemental Requirements**

To enhance the career utility and officer performance of students commissioned through AFROTC, all POC cadets and GMC scholarship cadets must successfully complete the following supplemental courses in addition to all Aerospace Studies courses:

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All scholarship cadets must take two semesters of a foreign language or have two years of a foreign language in high school.

GMC scholarship cadets must successfully complete a course in English composition prior to POC entry. They are also encouraged to take a course in speech. Nonscholarship GMC cadets are not required to take the supplemental courses; however, these courses may enhance their chances for POC selection.

POC cadets must successfully complete a course in mathematical reasoning prior to commissioning.

#### Uniforms

Uniforms, equipment, and textbooks for AFROTC are supplied by Wilkes College and the U.S. Air Force. All new GMC cadets are required to pay an initial deposit of \$40.00. All new POC cadets are required to pay an initial deposit of \$105.00. Of the initial deposit, \$15.00 will be kept to pay for new shoes and socks, which are nonreturnable and considered purchased. If other uniform items are returned in an unsatisfactory condition, part of the deposit will be used to pay for the unsatisfactory items. If the cadet returns the items in a satisfactory condition, the remaining deposit money will be returned.

## Light Aircraft Training for ROTC (LATR)

(mandatory for pilot candidates)

The LATR is designed primarily for cadets in the POC who intend to enter Air Force pilot training upon graduation and who do not possess an FAA pilot rating of Private Pilot or higher. It identifies applicants who possess the qualifications necessary to fly high-performance aircraft. The program consists of a ground phase given by officers of the detachment and a flying phase with dual and solo flight instruction conducted near San Antonio, Texas, or at Embry-Riddle Aeronautical University, Daytona Beach, FL. The LATR is normally conducted during the summer between the junior and senior years. Pilot candidates must attend LATR prior to receiving their commissions.

### Advanced Training Program (optional)

This program allows POC members to visit a USAF base for three weeks and work with an active duty officer in the student's chosen career area during the summer between the junior and senior years. Transportation from the legal residence of the cadet to the advanced training base and return, food, lodging, and medical and dental care are provided by the Air Force in addition to a small weekly salary.



and large enough to meet them

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#### The College of Arts and Sciences

#### Leadership Laboratory (mandatory)

AFROTC cadets must participate in Leadership Laboratory two hours every other week during each semester. This program involves a progression of experience designed to develop each student's leadership potential in a supervised training laboratory. Areas examined are Air Force customs and courtesies, drill and ceremonies, career opportunities, and the life and work of an Air Force junior officer.

#### Field Training (mandatory)

Candidates for enrollment in the POC will attend AFROTC field training during one summer. The training, conducted at selected Air Force bases, gives students an opportunity to observe Air Force units and people at work and at home; participate in marksmanship, survival, athletics, and leadership training activities; take aircraft orientation flights; and work with contemporaries from other colleges and universities. Transportation from the legal residence of the cadet to the field training base and return, food, lodging, and medical and dental care are provided by the Air Force. The cadet receives approximately \$400 for the four-week field training program or \$600 for the six-week field training program.

### Recommended Course Sequence Leading to a Commission in the United States Air Force

**General Military Course (GMC)** — Consists of four one-credit courses which are introductory in nature and open to freshmen or sophomores. Nonscholarship students incur no military obligation by enrolling in these courses.

First Semester		Second Semester
AS 101 U.S. Military Forces in the Contemporary World I	1	AS 102 U.S. Military Forces in the Contemporary World II
AS 000 Leadership Laboratory	0	AS 000 Leadership Laboratory
	1	
Third Semester		Fourth Semester
AS 201 The Development of Air Power I	1	AS 202 The Development of Air Power II
AS 000 Leadership Laboratory	0	AS 000 Leadership Laboratory

AS 000 Leadership Laboratory is mandatory for all cadets who enroll in Air Force ROTC. Lab meets for two hours, twice per month, usually at the Kingston Armory.

Variations in the above schedule are possible. Sophomores with no AFROTC experience can enroll in both the one-credit freshman and sophomore classes (the dual-enrollee program). Students with the GMC experience may still apply for POC entry, but they must apply as soon as possible in the sophomore year. For further information, call (717) 829-0194 or 1-800-572-4444, ext. 371, within state or 1-800-537-4444, ext. 371, from adjacent states.

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No credit

Fall - One credit

Spring — One credit

## Summer Field Training (Four Weeks)

**Professional Officer Course (POC)** — Consists of four three-credit courses open to students who have at least two full-time years of college remaining. Students enrolled in the POC receive \$100 per month and are under military obligation.

Fifth Semester		Sixth Semester	
AS 301 Concepts of Management	3	AS 302 Concepts of Leadership	3
AS 000 Leadership Laboratory	0	AS 000 Leadership Laboratory	0
	3		3
Seventh Semester		Eighth Semester	
AS 311 National Security Forces in American Society I	3	AS 312 National Security Forces in American Society II	3
AS 000 Leadership Laboratory	0	AS 000 Leadership Laboratory	0
	3		3

AS 000 Leadership Laboratory is mandatory for all cadets who enroll in Air Force ROTC. Lab meets for two hours, twice per month, usually at the Kingston Armory.

Variations in the above schedule are possible. Sophomores with no AFROTC experience can enroll in both the one-credit freshman and sophomore classes (the dual-enrollee program). Students with **no** GMC experience may still apply for POC entry, but they must apply as soon as possible in the sophomore year. For further information, call (717) 829-0194 or 1-800-572-4444, ext. 371, within state or 1-800-537-4444, ext. 371, from adjacent states.

#### **General Military Courses**

The General Military Courses (GMC) constitute a two-year program for freshmen and sophomores and are designed to provide a general knowledge of the role, organization, missions, and historical development of U.S. air power. Students enrolled in the GMC who are not on Air Force scholarships incur no military obligations. Note: AS 101-102-201-202 may be substituted for PE 100 series.

#### AS 000. LEADERSHIP LABORATORY

Involves a progression of experience designed to develop each student's leadership potential in a supervised training laboratory. Examines Air Force customs and courtesies, drill and ceremonies, career opportunities, life and work of an Air Force junior officer. There are two sections offered. One section meets every other Thursday for two hours. **All AFROTC students must elect this section.** A second section is for students who are dual-enrolled in the GMC (concurrently enrolled in an AS 100 and an AS 200 course). This second section meets on Tuesday afternoons. All dual-enrolled students must elect both sections.

#### AS 101. U.S. MILITARY FORCES IN THE CONTEMPORARY WORLD I

Background, missions, and functions of U.S. military forces, with emphasis on U.S. Air Force organization, doctrine, and strategic forces.

#### AS 102. U.S. MILITARY FORCES IN THE CONTEMPORARY WORLD II

U.S. general purpose military forces; insurgency and counter-insurgency; aerospace support forces and organizations.



#### The College of Arts and Sciences

#### AS 201. THE DEVELOPMENT OF AIR POWER I Fall — One credit Air power development in historical perspective through the end of World War II; evolution of missions, concepts, doctrine, and employment, with emphasis on changes in conflict and factors which have prompted technological developments.

AS 202. THE DEVELOPMENT OF AIR POWER II Spring — One credit Air power development from the end of World War II to the present; changing missions and employment of air power in support of national objectives. Prerequisite: AS 201 or permission of instructor.

AS 251. FLIGHT PROGRAM GROUND TRAINING Spring — One credit Prepares AFROTC cadets and others for FAA private pilot examination through study of general regulations, air traffic rules, accident reporting, air navigation, weather, safety, principles of flight, basic operations, flight computer. Limited spaces beyond AFROTC requirements are available to Wilkes juniors or seniors. Two hours of class/laboratory per week.

#### **Professional Officer Courses**

The Professional Officer Courses (POC) constitute a four-semester program, normally taken during the junior and senior years, leading to commissioning as an Air Force officer. The POC concentrates on concepts and practices of management, concepts and practices of leadership, national defense policy, and communicative skills.

#### AS 301. CONCEPTS OF MANAGEMENT

Fall — Three credits

General theory and practice of management with special reference to the Air Force. Covers evolution of management thought including classical, behavioral, and management science schools; study of information systems; quantitative approach to decision-making; policy formulation, principles and practices in planning, organizing, staffing, actuating, directing, and controlling business and Air Force activities; resource control techniques; social and ethical issues within the management process; development of communicative skills

Prerequisite: POC membership. Note: AFROTC cadets may substitute AS 301 for BA 251.

#### AS 302. CONCEPTS OF LEADERSHIP

Spring — Three credits Air Force leadership at the junior officer level, including its theoretical, professional, and legal aspects; practical experience in influencing people, individually and in groups, to accomplish organizational missions effectively; development of communicative skills. Prerequisite: AS 301 or permission of instructor.

#### AS 311. NATIONAL SECURITY FORCES IN **AMERICAN SOCIETY I**

Fall — Three credits The role and functions of the professional military officer in a democratic society and civilmilitary interaction; basic framework of defense policy and formulation of defense strategy, development of individual communicative skills.

Prerequisite: POC membership or permission of instructor. Note: AFROTC cadets may substitute AS 311 for PS 398 with History and Political Science Department approval.

#### AS 312. NATIONAL SECURITY FORCES IN AMERICAN SOCIETY II

Spring — Three credits The problems of developing defense strategy in a rapidly changing technological environment, effective deterrent posture and management of conflict; dynamics and agencies of defense policy making, analyzed through case studies.

Prerequisite: AS 311 or permission of instr

The College of Arts and Sciences

## ANTHROPOLOGY

Assistant Professor Tutwiler.

The Department of Sociology and Anthropology offers a variety of courses in anthropology. The anthropology curriculum is designed to provide students with a solid grounding in the fundamentals of sociocultural anthropology and an opportunity to study cultural diversity. Students may apply anthropology courses towards B.A. degrees with majors in either International Studies or Sociology (see pages 153 and 214). Anthropology courses may also be used in satisfying general college core requirements in the social sciences.

Graduates with a strong background in anthropology have used this preparation in a variety of ways. Some have found employment in business and government upon graduation. Others have taken advanced degrees in the social sciences and regional development at American and British Universities. Still others have pursued careers in secondary education.

The following is a listing of the Anthropology courses offered at Wilkes:

#### ANT 101. INTRODUCTION TO ANTHROPOLOGY

**Three credits** A general survey of the processes that generate human cultural and biological variation through time and among contemporary human groups. An introduction to cultural and physical anthropology, archaeology, and anthropological linguistics.

#### ANT 204. LANGUAGE AND CULTURE

**Three credits** 

The study of relationships among language, culture and perception, and patterns of language use. Recent ethnographic approaches to the understanding of culture and cognition.

#### ANT 250. ANTHROPOLOGY THROUGH FILM

**Three credits** A general survey of the use of still photography and cinematography in the depiction of the content of various cultures. Fee: \$20.

#### ANT 270. CULTURAL ANTHROPOLOGY

A detailed examination of the methods and theories employed in the description and comparison of human cultures, as applied to problems in intercultural relations. Course content is based upon case and cross-cultural studies

Prerequisite: Ant 101, or approval of instructor.

#### ANT 351. INDIANS OF NORTH AMERICA

The prehistoric development and recent life-ways of native Americans.

#### **Three credits**

**Three credits** 

**Three credits** 

#### ANT 352. PEOPLES AND CULTURES OF THE MIDDLE EAST Three credits

An overview of social organization, ethnicity, and cultural development in the Middle East and North Africa. The contributions of ecological, economic, political, and ideological factors to Middle Eastern social systems are examined in regard to present cultural configurations.

#### ANT 353. PEOPLES AND CULTURES OF AFRICA

An overview of social development in Africa south of the Sahara. Particular attention is paid to Africa's historical relationship to other culture areas, indigenous social patterns, and issues

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surrounding the push for socioeconomic development in Africa's emergent nations.

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Three credits

One to three credits

Three credits

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#### ANT 392. SOCIOCULTURAL CHANGE

A systematic evaluation of various attempts by social scientists to document and explain the phenomenon of change. A comprehensive survey of the field is presented through selected readings and discussion of major studies from sociology, cultural anthropology, and archaeology

Prerequisite: Soc 101 or Ant 101, or approval of instructor.

## ANT 395-396. INDEPENDENT RESEARCH

Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. Prerequisite: By arrangement with an instructor.

#### ANT 397. SEMINAR

Presentations and discussions of selected themes and issues in anthropology. Prerequisite: Criteria will vary according to content of seminar.

#### ANT 398. TOPICS

Three credits A study of topics of special interest not extensively treated in regularly offered courses.

![](_page_43_Picture_13.jpeg)

Associate Professor Sterling, Chairman; Associate Professors D'Vorzon, Fuller, Simon; Adjunct Professors Cohen, Adams

ART

Total minimum number of credits required for a B.A. degree in Art - 122.

Total minimum number of credits required for a B.A. degree in Art Education — 124.

Total minimum number of credits required for a B.F.A. degree in Art - 122.

Total minimum number of credits required for a B.F.A. degree in Art Education - 145.

Total minimum number of credits required for a minor in Art - 18. (Above Art 101)

The B.A. curriculum requires a minimum of 41 credits in art. An interdisciplinary concentration in Art Management is also offered in the B.A. program (requiring a minimum of 35 credits in art). The B.F.A. curriculum requires a minimum of 62 credits in art, and provides more intensive study in a chosen discipline (Communication Design, Painting, Photography, Printmaking, Sculpture, or Textile Design).

Students seeking teaching certification (K-12) may pursue either degree but the B.F.A. will normally require an additional semester for completion.

Art courses required of all art majors: Art 103, 104, 105, 115, 116, 206, 220, 397, and 499.

Additional courses required in the major, by concentration:

- Art (B.A.): Art 217, 221, 225, 233, one course in 243, 248, or 270, one 300-level course (3 credits);
- Art Education (B.A.): Art 217, 221, 225, 233, two courses in 243, 248, or 270, Education 101, 102, 201, 202, 203, 204, 371, 380, and Philosophy 216.
- Art Management (B.A.): Art 254, 270, art history elective (3 credits), art elective (3 credits), Business Administration minor in Management (administration emphasis) or Marketing (business emphasis), Speech 101 (administration emphasis) or Business Administration 216 (business emphasis), Cooperative Education 301 (internship, 3 credits);
- Communication Design (B.F.A.): Art 217, 225, 254, 255, 270, 298/398 (Design Topics, 6 credits), 490 and/or Cooperative Education 301 (6 credits), Art electives (9 credits), Communications 222;
- Fine Arts (B.F.A.): Art 217, 221, 223, 225, one course in 243, 248, or 270, 300/ 400-level course in single discipline (12 credits); art electives (12 credits).

Formal intention to pursue the Fine Arts B.F.A. must be submitted at least one year before graduation. Acceptance into this program requires submission of a satisfactory portfolio. B.F.A. graduates will also submit a written analysis and photographic survey of their work for graduation.

(New transfer students must submit a portfolio for Department review.)

![](_page_43_Picture_31.jpeg)

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## **Recommended Course Sequences for Art Degrees**

First Sem	Second Semester						
	Fin B.A.	e Arts B.F.A	Com. Design		Fin B.A.	e Arts B.F.A	Com. Design
Art 103 Color & Design I	3	3	3	Art 104 3-D Design	3	3	3
Art 105 Drawing &	3	3	3	Art 206 Color &			
Composition				Design II	3	3	3
Eng 101 Composition I	3	3	3	Eng 102 Composition II	3	3	3
Core Requirements	6	6	6	Core Requirements	6	6	6
PE 100 Activity	0	0	0	PE 100 Activity	0	0	0
	15	15	15		15	15	15

Third Se	mester	Fourth Se	meste	er			
	Fine	Arts	Com.		Fine	e Arts	Com.
	B.A.	B.F.A	Design		B.A.	B.F.A	Design
Art 115 History of Art I	3	3	3	Art 116 History of Art II	3	3	3
Art 220 Life Drawing	3	3	3	Art 225 Printmaking I	3	3	3
Art 221 Painting I	3	3	-	Art 254 Graphic Design	-	-	3
Art 270 Photography I	-	-	3	Core Requirements	9	9	6
Core Requirements	6	6	9	PE 100 Activity	0	0	0
PE 100 Activity	0	0	0			-	_
	15	15	18		15	15	15

Fifth Ser	nester	100.		Sixth Semester			
	Fin B.A.	e Arts B.F.A	Com. Design		Fine B.A.	e Arts B.F.A	
Art 217 Modern Art	3	3	3	Art 300-Level Elective	3	3	
Art 233 Sculpture I	3	3	-	Major Elective	-	3	
Art 243, 248, or 270	3	3	-	Core Requirements	9	9	
Art 255 Graphic Prod.	-	-	3	Free Elective	3	-	
SCTA 222 Video Prod.	-	-	3		15	15	
Core Requirements	6	6	6		10	10	
	15	15	15				

Sevent	h Semest	Eighth Semester					
	Fine	Fine Arts Com.			Fine	Arts	Com.
ACREA Juliber	B.A.	B.F.A	Design	Mento Station Cooling	B.A.	B.F.A	Design
Major Electives	-	9	6	Design Topic	-	-	3
Free Electives	15	6	9	Art 490 Advanced	-	9	6
	15	15	15	Problems Art 397 Sem: Contemp. Issues	2	2	2
				Free Electives	15	6	3
					17	17	14

#### **First Semester** B.A. B. Art 103 Color & Design I 3 Art 105 Drawing & 3 Composition Eng 101 Composition I 3 Psy 101 General Psychology 3 Core Requirements 3 PE 100 Activity 0 15 1 **Third Semester** B.A. B.F. Art 115 History of Art I 3 Art 220 Life Drawing 3 3 Art 221 Painting I Ed 101 Practicum 1 Ed 201 Intro. to Educ. 3 Phl 101 Intro. to Phil. 3 0 0 PE 100 Activity 16 16 **Fifth Semester** B.A. B.F. Art 217 Modern Art 3 3 Art 233 Sculpture I Art 243 or 248 or 270 3 Phi 216 Phil. of Art 3 Core Requirements 3 15 18 Seventh Semester B.A. B.F. Ed 204 Art Curricula 3 Art 300-Level Elective 3 Major Electives \_ 6 **Core Requirements**

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6

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Ninth Semester

Art 490 Advanced Problems – 9

Major Electives

The College of Arts and Sciences

ter			Second Semes	ter	
	B.A.	B.F.A.		B.A.	B.F.A.
	3	3	Art 104 3-D Design	3	3
	3	3	Art 206 Color & Design II	3	3
			Eng 102 Composition II	3	3
	3	3	Psychology Elective	3	3
IY	3	3	Core Requirements	3	3
	3	3	PE 100 Activity	0	0
	0	0			
	15	15		15	15
ter			Fourth Semest	er	
	B.A.	B.F.A.	Chief Sage states wind an an an an	B.A.	B.F.A.
	3	3	Art 116 History of Art II	3	3
	3	3	Art 225 Printmaking I	3	3
	3	3	Ed 202 Educ, Psych	3	3
	1	1	Core Requirements	6	6
	3	3	PE 100 Activity	0	0
	3	3	0	itoA D	01.39
	0	0			
	16	16		15	15
			Ciuth Orange	ta, parte	
ter		0.54	Sixth Semeste	er	
	B.A.	B.F.A.	lography 1	B.A.	B.F.A.
	3	3	Art 243 or 248 or 270	3	3
	3	3	Art 397 Sem: Contemp.	2	2
	3	3	Issues		10
	3	3	Art 300-Level Elective	-	3
	3	6	Ed 102 Practicum	1	1
			Ed 203 Art Methods	3	3
		and the second second	Core Requirements	9	6
	15	18		18	18
ste	er		Eighth Semest	er	
	B.A.	B.F.A.		B.A.	B.F.A.
	3	3	Ed 371 Indiv. in Classroom	3	3
	3	_	Ed 380 Prof. Semester	15	15
	_	6	spinetite and consupre particle accepted at	10	10
	6	6		18	18
	12	15			
ter					
	BA	RFA			
		Mail and a			

## **Recommended Course Sequences for Art Education**

Art 206 Color & Design I	1 3	3
Eng 102 Composition II	3	3
Psychology Elective	3	3
Core Requirements	3	3
PE 100 Activity	0	0
	15	15
Fourth Sen	nester	
	B.A.	B.F.A
Art 116 History of Art II	3	3
Art 225 Printmaking I	3	3
Ed 202 Educ. Psych.	3	3
Core Requirements	6	6
PE 100 Activity	0	0
	15	15
Sixth Sem	ester	
	B.A.	B.F.A.
Art 243 or 248 or 270	3	3
Art 397 Sem: Contemp. Issues	2	2
Art 300-Level Elective	iomonic-19	3
Ed 102 Practicum	1	1
Ed 203 Art Methods	3	3
Core Requirements	9	6
	18	18

		B.A.	B.F.A
Ed 371	Indiv. in Classroom	3	3
Ed 380	Prof. Semester	15	15
		18	18

![](_page_44_Picture_12.jpeg)

The College of Arts and Sciences

**Second Semester** 

**Eighth Semester** 

Free Elective or SCTA 101 Speech

or BA 254 Organizational Design

**Core Requirements** 

Art 397

**BA** Elective

Free Electives

15

3

9

15

Three credits

## **Recommended Course Sequence for a Degree in Art Management**

First Semester		Second Semester
Art 103 Color & Design I	3	Art 104 3-D Design
Art 105 Drawing & Composition	3	Art 206 Color & Design II
Eng 101 Composition I	3	Eng 102 Composition II
Ec 101 Principles of Economics I	3	Ec 102 Principles of Economics II
Core Requirements	3	Core Requirements
PE 100 Activity	0	PE 100 Activity
	15	
Fourth Semester		Third Somester
Third Semester		Fourth Semester
Art 115 History of Art I	3	Art 116 History of Art II
Art 220 Life Drawing	3	Art 254 Graphic Design
BA 216 Advertising	3	BA 222 Marketing
or Acc 101 Elementary Accounting	hoo	or Acc 102 Elementary Accounting II
Core Requirements	6	Core Requirements
PE 100 Activity	0	PE 100 Activity
	15	
Fifth Semester		Sixth Semester
Art 270 Photography I	3	Art Elective
Art History 200-level	3	BA Elective

Art History 200-level	3
BA Elective	3
or BA 251 Principles of Mgmt.	
Core Requirements	6
	15

Se	venth	Sem	este
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COOP 301 Internship 3 **BA Elective** 3 **Core Requirements** 3 6 Free Electives 15

ART 101. EXPERIENCING ART I

Lectures and discussion on the elements of art and the forerunners of modern and contemporary art. Two and three dimensional studio work is explored through the creative process in a variety of media.

#### The College of Arts and Sciences

ART 104. THREE DIMENSIONAL DESIGN **Three credits** An introductory course in understanding and manipulating form in three dimensions. Students will do a series of space and form projects emphasizing design and employing such materials as paper, wire, sand, plaster, clay, and wood.

ART 105. DRAWING AND COMPOSITION **Three credits** An introductory course exploring the organization and potential of line, space, and texture through a variety of media and subject matter, including still life and figure drawing.

ART 115. HISTORY OF ART I Three credits A survey of the art and architecture of Western Civilization from pre-history through the Middle Ages. Non-western cultures will also be introduced. Slide lectures and discussion will focus on major artworks and trends within their cultural setting.

ART 116. HISTORY OF ART II **Three credits** A survey of the art and architecture of Western Civilization from the Renaissance to the present. Slide lectures and discussions will focus on major artists, artworks, and trends within their cultural setting.

ART 206. FUNDAMENTALS OF COLOR AND DESIGN II Three credits An advanced approach to color and design as applied to two dimensional art, for both the fine arts student and the student wishing to apply color and design to commercial art. Prerequisite: Art 103.

ART 217. MODERN ART AND DESIGN **Three credits** 20th century art and design will be considered in relation to central themes in modern civilization, such as science and technology, social and political revolution, historicism, and formalism. Slide lectures and discussions will treat objects as diverse as paintings and refrigerators, buildings and billboards.

ART 220. LIFE DRAWING **Three credits** Advanced study and research for art majors in the development of drawing skills using the live model. Prerequisite: Art 105 or permission of instructor.

ART 221. PAINTING I Three credits An introduction to painting methods, techniques, and materials. Emphasis on the organization of composition and painting techniques.

ART 225. PRINTMAKING I **Three credits** An introduction of relief, intaglio, and planographic techniques including block printing, etching, lithography, and silk screen.

ART 228. WATER COLOR PAINTING **Three credits** An exploration into painting methods of transparent and opaque paints involving still life, landscape, and a wide range of other subject matter.

### ART 233. SCULPTURE I

An introductory course into the basic concepts of three dimensional form and space. Modeling in clay from life; casting and direct building techniques in plaster; basic carving experiences in e and wood. Fee: \$15.

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ART 103. FUNDAMENTALS OF COLOR AND DESIGN I Three credits A fundamentals course for all art majors involving the basic elements of design and the study of color systems including their physical, psychological, and sociological properties.

#### ART 243. CERAMICS I

**Three credits** 

Three credits

Exploration into the basic methods and techniques of hand building and wheel work. Experimentation in surfaces decoration, glazing, and kiln firing. Fee: \$25.

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Three credits

Three credits

Three credits

Three credits

**Three credits** 

Three credits

**Three credits** 

**Three credits** 

**Three credits** 

Three credits

### ART 245. SURFACE DESIGN I

Three credits An exploration of both traditional and contemporary methods of the fabric enhancement, with emphasis upon Batik. Fee: \$15.

#### ART 248. FIBER I

An introduction to the techniques and aesthetic uses of fiber in its single element and basic weaving processes

#### ART 254. GRAPHIC DESIGN I

Familiarization with the tools, design elements, and production processes of the graphic artist. The value and contribution of the graphic arts to society will be discussed. Students will experience methods and techniques currently being practiced in the graphic design field.

#### **ART 255. GRAPHIC ARTS PRODUCTION**

An overview of the graphic arts industry emphasizing production procedures from the mechanical stage to the printed piece. Attention will be given to typography, typesetting, printing processes, paste-up, printing papers, binding and finishing. Visits to printers and publishers will be included.

#### ART 260. ART IN THE ELEMENTARY CLASSROOM **Two credits**

An exploration of common situations in elementary education to discover the opportunities for creative work and the methods and materials by which they may be realized. An extension of personal experience with a variety of arts and crafts materials and processes used by children. (same as Ed. 324)

#### **ART 270. PHOTOGRAPHY I**

An introduction to the fundamentals of photography; camera usage, subject consideration, lighting, darkroom techniques, and the preparation of photographs for exhibit. Fee: \$20.

#### ART 325. PAINTING II

Increased emphasis on development of style and experimentation in contemporary art methods and techniques.

#### Prerequisite: Art 221.

ART 328. PRINTMAKING II

Individual experimentation using plastics, photographic techniques in silk screen, lithography, and intaglio, as well as traditional methods. Prerequisite: Art 225.

#### ART 333. SCULPTURE II

An exploration into metal sculpture employing gas and electric welding processes; plastics. Advanced work in carving, construction, and assemblage in various media. Fee: \$15. Prerequisite: Art 233 or permission of instructor.

#### ART 344. CERAMICS II

Advanced work in both hand-built and wheel-thrown ceramics. Fee: \$25. Prerequisite: Art 243.

#### ART 348. FIBER II

Advanced study of weaving processes using a variety of loom structures. Prerequisite: Art 248.

#### ART 370. PHOTOGRAPHY II

Advanced work in black and white photography, including the zone system; refined darkroom techniques and development of a personal style. Fee: \$20. Prerequisite: Art 270.

ART 395-396. INDEPENDENT RESEARCH One to three credits Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. Prerequisite: Approval of department chairman is required.

#### ART 397. SEMINAR: CONTEMPORARY ISSUES **Two credits** Ideas and problems in contemporary art and criticism will be discussed, using current literature and exhibitions

Prerequisite: junior or senior standing.

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#### ART 198/298/398. TOPICS

Variable credit

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A study of topics of special interest not extensively treated in regularly offered courses. Recent studio topics have included Ceramic Sculpture, Color Photography, and Lettering. Recent art history topics have included Italian Renaissance Art and Modern Architecture.

ART 490. ADVANCED PROBLEMS IN STUDIO

One to six credits

Independent work in a selected studio discipline for the advanced student. Periodic consultation with the instructor will be arranged. May be repeated for a maximum of 15 credits in any one discipline. Open only to junior and senior B.F.A. candidates. Fee: variable. Prerequisite: appropriate 300-level course.

**ART 499. SENIOR EXHIBITION** 

No credit

Every senior will prepare an exhibition of his or her work, in consultation with the student's faculty adviser. The exhibition may be presented either in the fall or spring term.

### BIOLOGY

Professor Turoczi, Chairman; Associate Professors Hayes, Houseknecht; Assistant Professors Bottjer, Klemow, Long; Professors Emeriti Ogren, Reif; Adjunct Professor Debra Zehner.

Total minimum number of credits required for a B.A. degree — 121. Total minimum number of credits required for a B.S. degree — 121. Total minimum number of credits required for a minor — 22.

The biology program is a general program covering basic areas of biology. Specific pre-professional training is minimized in favor of the broadest possible background in the liberal arts as well as the biological sciences.

The B.A. curriculum offers flexibility so that those students in secondary education who are preparing to teach can include the professional semester of student-teaching either in the seventh or eighth semester. In addition, this program provides the opportunity for students to double major and jointly satisfy the requirements of both the Department of Biology as well as those of the other department involved.

The B.S. curriculum meets all of the liberal arts requirements for the Bachelor of Arts degree. In addition, it provides a greater concentration of advanced biology courses. This program is recommended for those students planning to enter industry, professional schools, or continue with graduate study in biology.

![](_page_46_Picture_46.jpeg)

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In order to emphasize the broadening aspects of biological knowledge, the department has established categories of specific biological fields from which the student must achieve reasonable diversity in the selection of upper-level courses. The four categories are (1) botanical biology, (2) organismic biology, (3) populational biology, and (4) molecular/cellular biology. The B.A. major is required to take one 300-level course from each of the above named four categories; the B.S. major must take one 300-level course from each of the four categories and additionally select any two courses from those same categories.

Courses within the four categories are constituted as follows:

- (1) Botanical Bio 319, 320, 385
- (2) Organismic Bio 303, 304, 305, 310, 313, 318
- (3) Populational Bio 308, 309, 317, 340, 394
- (4) Molecular/Cellular Bio 307, 312, 315, 341

Students in majors other than Biology may wish to elect a minor in Biology. The minor in Biology shall consist of 22 credits. Required courses are Bio 121-122, 223-224 plus two 300-level, three-credit biology electives. These upper-level electives (exclusive of Independent Research, Bio 395-396) will be selected after consultation with the department chairman.

#### **Honors Program in Biology**

Honor students in Biology will be recognized upon completion of the following requirements: achieving a graduating grade point average of 3.25 or better, receiving grades of 3.00 or better in all biology courses, pursuing independent research in biology and presenting results either at a national or regional scientific conference or through publication of a research paper. The distinction "Honors in Biology" will be recorded on the student's transcript upon graduation.

### **Recommended Course Sequences for a Degree in Biology**

First Seme	ster		Second Sem	ester	
	B.A.	B.S.		B.A.	В
Bio 121 Principles of Modern Biology I	4	4	Bio 122 Principles of Modern Biology II	4	
Chm 115 Elements & Compounds	4	4	Chm 116 The Chemical Reaction	4	
Eng 101 Composition I	3	3	Eng 102 Composition II	3	
Mth 105 Calculus for	4	4	Mth 106 Calculus for	4	

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#### The College of Arts and Sciences

Third Semester			Fourth Semester		
	B.A.	B.S.		B.A.	B.5
o 223 Comparative Anatomy	4	4	Bio 224 Cellular and Molecular Biology	4	and an
hm 231 Organic Chemistry I	4	4	Chm 232 Organic Chemistry II	4	LOR
ore Requirements	6	6	Core Requirements	6	
E 100 Activity	0	0	PE 100 Activity	0	Sares!
	14	14		14	1.

Fifth Sem	ester		Sixth Sem	ester	
	B.A.	B.S.		B.A.	B.S
io 397 Seminar*	1	1	Bio 397 Seminar*	1	to much
io Elective/Research	3	3	Bio Elective/Research	3	3
hy 105 Introductory	4	4	Phy 106 Introductory	4	4
Physics I			Physics II		
ore Requirements	6	6	Core Requirements	6	6
ree Elective**	3	dente-bries	Free Elective**	3	arthol <u>-</u>
th 150 Elementary Statistics		3	Computer Science Elective	nano <u>di</u> na 18. jetutej	3
	16-17	16-17		16-17	16-17
Seventh Set	mester		Eighth Sen	nester	
	B.A.	B.S.		B.A.	B.S
io Elective/Research	3	6	Bio Elective/Research	3	6
ore Requirements	6	6	Core Requirements	3	3
ree Electives**	6	3	Free Electives**	9	6
	15	15		15	15

\*Only one semester of Bio 397 is required but it must be taken in either the fifth or sixth seme \*Any course other than a biology course.

### BIO 103. BIOLOGICAL SCIENCE I

#### Three credits

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14

Biological Science I covers the basic structure and functions of plant and animal cells, taxonomy, plant diversity, and the interrelationships between plants and man. It is open only to nonbiology majors. Lecture, two hours a week; laboratory, two hours a week. Laboratory fee: \$25

**BIO 104. BIOLOGICAL SCIENCE II** 

Life, Managerial, and Social Sciences I or Mth 111 Calculus I PE 100 Activity

Life, Managerial, and Social Sciences II or Mth 112 Calculus II PE 100 Activity

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Biological Science II covers diversity of organisms other than plants, form and function in animals, development, genetics, evolution, and behavior. The relationships between animals and man are emphasized. This course is open only to non-biology majors. Lecture, two hours a week; laboratory, two hours a week. Laboratory fee: \$25. Prerequisite: Bio 103.

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Four credits

Four credits

Four credits

Four credits

Four credits

**Three credits** 

Three credits

#### **BIO 113. MICROBIOLOGY**

This course presents the basic principles of bacteriology and the relationship of micro-organisms to disease and its prevention, control, and treatment. It considers the effects of microbes within the body and the body's reaction to them. Lecture, three hours a week; laboratory, three hours a week. Laboratory fee: \$35.

BIO 115-116. HUMAN ANATOMY AND PHYSIOLOGY Four credits each This course provides a general study of the human body, its structure and normal function. It provides an appreciation of the complex nature of the human body with relation to the promotion of a healthy organism. Lecture, three hours a week; laboratory, three hours a week. Laboratory fee: \$35 each course.

#### **BIO 121. PRINCIPLES OF MODERN BIOLOGY I**

An introduction to concepts of modern biological science for students majoring in biology and other sciences. Course will focus on the structure and function of living matter. A heavy emphasis will also be given to the anatomy and physiology of plants. Three hours of lecture, three hours of laboratory, one hour of discussion per week. Laboratory fee: \$35. Corequisite: Chm 115.

#### **BIO 122. PRINCIPLES OF MODERN BIOLOGY II**

A continuation of Biology 121. Topics include: the structure and function of the vertebrate animal, the causes and nature of biological diversity and concepts of ecology. Three hours of lecture, three hours of laboratory, one hour of discussion per week. Laboratory fee: \$35. Prerequisite: Bio 121.

#### **BIO 223. COMPARATIVE ANATOMY**

This course deals with the evolution and anatomy of the organ systems of vertebrates. Lectures survey the comparative anatomy of the vertebrate classes. Laboratory dissections include the Lamprey, Shark, and Cat in detail. Lecture three hours per week, laboratory three hours per week, discussion one hour per week. Laboratory fee: \$35. Prerequisite: Bio 121-122.

#### BIO 224. CELLULAR AND MOLECULAR BIOLOGY

Cell structure in relation to function. Biochemistry and physiology of animal, plant, and bacterial cells and their viruses. The cell in division and development. Three lectures, one discussion, and one three-hour laboratory per week. Laboratory fee: \$35. Prerequisite: Bio 121-122, 223.

**BIO 303. BACTERIOLOGY Three credits** Bio 303 is a general introductory course covering the morphology and growth of bacteria, sterilization, and applied uses of bacteria. The laboratory work covers techniques of staining, cullaboratory, three hours a week. Laboratory fee: \$35.

## Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### **BIO 304. LIFE OF THE VERTEBRATES**

This course presents a view of chordate animals with particular emphasis on the natural history, evolution, and classification of these forms. Lecture, two hours; laboratory, three hours a week. Laboratory fee: \$35.

Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### **BIO 305. INVERTEBRATE BIOLOGY**

This course is a study of the major invertebrate phyla with respect to their taxonomy, evolution, morphology, physiology, and ecology. Lecture, two hours a week; laboratory, three hours a week. Laboratory fee: \$35.

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#### BIO 307. ANALYTICAL CYTOLOGY

Three credits This course presents an experimental analysis of cell structure, organelles, chemistry, and activities by means of microscopic techniques, and instrumentation. Lecture, two hours a week; laboratory, three hours a week. Laboratory fee: \$35. Prerequisite: Bio 121-122, 223-224, or permission of instructor.

**BIO 308. GENETICS** 

Genetics will present a detailed treatment of genetics beyond the introductory level with particular emphasis on populational and molecular aspects of heredity. Topics will include plant and human genetics. Lecture, two hours; laboratory, three hours a week. Laboratory fee: \$35. Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### **BIO 309. EVOLUTION**

#### Evolution is the study of living things with time. Theories relating to the origin of life, natural selection, and speciation as processes of organic evolution are emphasized. Lecture, three hours a week. Field trip fee: \$15.

Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### **BIO 310. ANIMAL BEHAVIOR**

#### **Three credits** Animal Behavior is a course emphasizing behavior as the response of an organism to physical and social environmental change, and covering the processes that determine when changes in behavior occur and what form the changes take. Laboratories, using local fauna, demonstrate principles discussed in lecture. Lecture, two hours; laboratory, three hours a week. Laboratory fee: \$35

Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### **BIO 312. COMPARATIVE PHYSIOLOGY**

## **Three credits** Comparative Physiology encompasses the study of organ functions and organ system functions in different animal groups. Emphasis will be on the systemic physiology of vertebrate animals. Lecture, two hours; laboratory, three hours a week. Laboratory fee: \$35.

Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### **BIO 313. PARASITOLOGY**

#### **Three credits** Parasitology is the study of organisms that live on or within other organisms and the relationship of these organisms to their hosts. This course deals with the common parasites that infect man and other animals. Lecture, two hours; laboratory, three hours a week. Laboratory fee:

Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### **BIO 315. MOLECULAR BIOLOGY**

#### **Three credits**

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Three credits

**Three credits** 

Molecular Biology is the study of the energetics, metabolism, and biochemical aspects of living systems. A general biochemical presentation will be provided with reference to proteins, carbohydrates, and lipids with extensive coverage of molecular genetics. Lecture, three hours a week

Prerequisite: Bio 121-122, 223-224, Chm 231-232, or permission of instructor.

#### **BIO 317. ECOLOGY**

\$35

#### **Three credits**

Ecology examines contemporary ecological thinking as it pertains to the interrelationships of organisms and their environments. Interactions at the population and community level are emphasized. Lecture, two hours; laboratory, three hours a week. Laboratory fee: \$35. Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### **BIO 318. DEVELOPMENTAL BIOLOGY**

#### Three credits

A course dealing with principles of organismic development, gametogenesis, fertilization, cleavage, embryogenesis, differentiation, morphogenesis, regeneration. Laboratory work in-

Prerequisite: Bio 121-122, 223-224, or permission of instructor.

cludes vertebrate embryology, microtechnique, and some experimentation. Lecture, two hours; laboratory, three hours a week. Laboratory fee: \$35. Prerequisite: Bio 121-122, 223-224, or permission of instructor.

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**Three credits** 

Three credits

Three credits

Three credits

Three credits

One to three credits

One to three credits

#### **BIO 319. PLANT DIVERSITY**

A comprehensive survey of bryophytes, vascular plants and plantlike organisms (fungi and algae) emphasizing their structure, reproductive biology, natural history, evolution, and importance to humans. Lecture, two hours per week; laboratory, three hours per week. Laboratory fee: \$35.

Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### BIO 320. PLANT FORM AND FUNCTION

An introduction to the morphology, anatomy, cytology and physiology of plants, with emphasis on the vascular plants. Structural and functional aspects of plants will be interpreted in relation to each other and within ecological and evolutionary contexts. Lecture, two hours per week; laboratory, three hours per week. Laboratory fee: \$35.

Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### **BIO 340. LIMNOLOGY**

A study of the chemical, physical, and biological aspects of freshwater systems. Laboratory investigations will consist of in-depth analyses of local lakes and streams. Lecture, two hours; laboratory, three hours. Laboratory fee: \$40.

Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### BIO 341. IMMUNOLOGY AND IMMUNOCHEMISTRY

This course is concerned with the biologic mechanisms and chemistry of reactants and mediators associated with natural and acquired states of immunity, tissue and blood serum responses to infection and immunization, and related patho-physiologic alterations of hypersensitivity phenomena in vertebrate animals and man. Two lectures and one three-hour laboratory per week. Laboratory fee: \$35.

Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### **BIO 385. FIELD BOTANY**

This is a specialized summertime field course which emphasizes a taxonomic, phylogenetic, and ecological survey of higher plants indigenous to Northeastern Pennsylvania. Due to the extensive field work, enrollment is somewhat more restricted than in other courses; therefore, written permission from the instructor is the prime prerequisite of those upperclassmen wishing to register for the course.

Prerequisite: Bio 121-122, 223-224, or permission of instructor.

#### **BIO 394. BIOLOGICAL FIELD STUDY**

On-site study of biological problems or situations incorporating field documentation and investigation techniques. May be repeated for credit when no duplication of experience results. One hour of lecture per week plus field trip. Fee: variable.

Prerequisite: Bio 121-122, or permission of instructor.

#### **BIO 395-396. INDEPENDENT RESEARCH**

This course involves independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required.

Prerequisite: Written approval of department chairman is required. Candidates for Independent Research must have a minimum GPA of 3.00 and be of upper class standing.

One credit

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## **BUSINESS ADMINISTRATION**

The School of Business and Economics

Professors Basu, Farrar; Associate Professor Engel, Gera; Assistant Professors Batory, Cordora, Gurdin, Penugonda, Raspen, Rodin; Adjunct Professor Chmiola.

Total minimum number of credits required for a B.S. degree -126. Total minimum number of credits required for a minor -24.

The School of Business and Economics (S.O.B.E.) offers a variety of business administration tracks leading to executive careers in business, industry, and government. Students interested in pursuing graduate degrees, attending professional schools, or seeking professional licensings will find that the S.O.B.E. curriculum will prepare them for such challenges.

The business administration curriculum is composed of three tiers or steps intended to combine simultaneously a rigorous education with the flexibility of individualized program design. The first sequential tier is the liberal arts core. If business administration majors are to become effective leaders and self-fulfilled individuals, they must possess the skills and knowledge acquired through a demanding exposure to the arts, sciences, mathematics, and humanities. The next tier of the curriculum is the business administration core. This core transmits a common educational experience to all majors by addressing the topics believed necessary for effective managers to possess. Subjects studied include such disciplines as finance, marketing, economics, management, and computer science. The third and final tier is represented by what is known as a "concentration". Each student must take at least six courses from a menu of offerings in any one concentration. This is the stage at which students can select the concentration and courses that focus upon their own personal career goals and ambitions. Choices include such areas as international business, marketing, and finance.

The business administration curriculum also allows for a number of free electives for further customization of one's education. A student who wishes to declare a minor, perhaps in computer science or communications, readily can do so. Minors, double majors, or a personalized package of electives can be constructed around the interests of the student.

For majors in other disciplines, the S.O.B.E. currently offers minors in finance, marketing, management, and quantitative business analysis. Thus, students who may be contemplating a career in business as a means of fully utilizing their major of choice will find that these minors will complement successfully their other academic interests.

Business administration alumni are to be found in positions of leadership

Presentations and discussions of selected topics. Prerequisite: Approval of department chairman is required.

#### BIO 198/298/398. TOPICS

**BIO 397. SEMINAR** 

Variable credit

A study of topics of special interest not extensively treated in regularly offered courses. Prerequisite: Bio 121-122, 223-224, or permission of instructor. in organizations throughout the world. Our alumni staff the faculty of colleges and universities nationwide. For the next generation of executives and professionals seeking such realization of ambitions, the S.O.B.E. Business Administration Program at Wilkes will admirably prepare them for their demanding future.

The School of Business and Economics

## **Recommended Course Sequence for a**

## **Degree in Business Administration**

First Semester		Second Semester
Eng 101 Composition I	3	Eng 102 Composition II
Core Requirements	6	Core Requirements
Mth 101 Fundamentals*	3	Mth 102 Fundamentals*
CS 115 Survey of Computers	3	SCT 101 Public Speaking
PE 100 Activity	0	PE 100 Activity
	15	

3

3

3

3

18

3

3

Third Semester

**Fifth Semester** 

Seventh Semester

BA 209 Business Correspondence

BA 251 Management

Core Requirements

Free Electives

BA 225 Finance

SOBE Electives

Free Electives

Ec 201 Money and Banking

Ec 231 Statistics I

Acc 121 Accounting I

BA 231 Business Law I

Ec 101 Economics I

Core Requirements PE 100 Activity

	Fourth Semester
3	Acc 122 Accounting II
3	BA 232 Business Law II
3	Ec 102 Economics II
6	Core Requirements
0	PE 100 Activity
15	

#### **Sixth Semester**

BA 222 Marketing BA 252 Operations Management or BA 254 Organizational Design Ec 232 Statistics II **Core Requirements** 

#### **Eighth Semester** 3 SOBE Electives Free Electives

15

15

\*Students will enroll in a higher mathematics sequence, if work similar to 101-102 was taken in high school.

6

6

15

#### **B.A. CONCENTRATIONS**

Students who major in business administration must take at least six courses from one of the following concentrations:

#### **BANKING AND FINANCE**

Acc 204 Managerial Accounting BA 220 Real Estate BA 226 Investments BA 240 Property Insurance BA 241 Life Insurance BA 395-396 Independent Research BA 398 Topics CS 115 Survey of Computers and Data Processing or CS 124 COBOL Programming\*

BA 212 Government and Business

CS 115 Survey of Computers and

Data Processing **or** CS 123 FORTRAN Programming\* Ec 222 American Labor Movement

Ec 226 International Investment and

Ec 227 Economic Geography of North

America, Europe, and the

Ec 223 Collective Bargaining

Ec 225 International Trade

Finance

Ec 224 Economic Development

Soviet Union

The School of Business and Economics

Ec 224 Economic Development Ec 225 International Trade Ec 226 International Investment and Finance Ec 236 **Public Finance** Ec 251 Microeconomics I Ec 251 Macroeconomics I Ec 252 Macroeconomics I Mth 105 Introductory Calculus I Mth 106 Introductory Calculus II

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- PS 316 Government Budgeting SCT 206 Business and Professional
  - Speaking

### **ECONOMICS**

- Ec 228 Economic Geography of Asia, Africa, and Latin America Ec 229 **Comparative Economic Systems** Ec 230 **Business Cycles** Ec 236 Public Finance Ec 241 Microeconomics I Ec 245 Consumer Economics Ec 251 Macroeconomics I
- Ec 252 Macroeconomics II
- Ec 395-396 Independent Research
- Ec 397 Seminar Ec 398 Topics
- Mth 105 Introductory Calculus I
- Mth 106 Introductory Calculus II

### MANAGEMENT AND INDUSTRIAL RELATIONS

Acc 201	Cost Accounting	CS 115	Survey of Computers and
ACC 204	Managerial Accounting		Data Processing or
BA 217	Logistics and Distribution	CS 124	COBOL Programming*
	Management	Ec 222	American Labor Movement
BA 240	Property Insurance	Ec 223	Collective Bargaining
BA 241	Life Insurance	Mth 105	Introductory Calculus I
BA 252	Operations and System	Mth 106	Introductory Calculus II
	Management or	Mth 262	Operations Research
BA 254	Organizational Design and	PS 218	Public Administration
	Behavior**	PS 318	Public Personnel Administration
BA 256	Business Policies and	Psy 232	Human Behavior
	Corporate Responsibility	Psy 243	Industrial Psychology
BA 271	Human Resources Management	Soc 265	Sociology of Work
BA 395-3	96 Independent Research	SCT 202	Interpersonal Communication

BA 398 Topics SCT 206 Business and Professional Speaking SCT 303 Organizational Communication BA 240

CS 115

CS 123

elective.

### The School of Business and Economics

#### MARKETING

CS 124 COBOL Programming\* BA 114 Salesmanship BA 216 Advertising BA 217 Logistics and Distribution Management Economic Development International Trade International Investment and Ec 224 Ec 225 Ec 226 Ec 226 International Investment and Finance Ec 245 Consumer Economics Mth 105 Introductory Calculus I Mth 106 Introductory Calculus II Psy 232 Human Behavior SCT 202 Interpersonal Communication SCT 206 Business and Professional Speaking Property Insurance BA 241 Life Insurance BA 261 Principles of Retailing BA 201 Philippes of Hotaling BA 264 Retail Buying BA 395-396 Independent Research BA 398 Topics Survey of Computers and Data Processing or FORTRAN Programming or Speaking SCT 302 Public Relations

#### **INTERNATIONAL BUSINESS**

\*BA 252 or BA 254 may not be used to satisfy both the Business Administration core and serve as a concentration

			0
	INTERNATION	IAL BUSINESS	BA 114 Salesmanship BA 216 Advertising
Ec 224 Ec 225 Ec 226	Economic Development International Trade International Investment and	Any of the following History courses, to a maximum of six credits: Hst 328 United States Foreign Policy	BA 217 Logistics BA 231 Intro. to Contracts & Sales
Ec 227	Finance Economic Geography of North America, Europe, and the Soviet Union	Hst 356 Europe In the Twentieth Century Hst 361-362 History of the Far East Hst 382 History of Latin America Hst 348 History of Russia	<ol> <li>Management Required: Acc 121 Elementary Acc I Acc 122 Elementary Acc II</li> </ol>
Ec 228	Economic Geography of Asia, Africa, and Latin America	Any of the following Political Science	Electives: Two of the following:
Ec 229 BA 252	Comparative Economic Systems Operations and Systems Management <b>or</b>	PS 105 Comparative Government PS 202 International Relations	BA 225 Managerial Finance BA 252 Op. Sys. & Mgmt. BA 256 Br. Bal & Corr.
BA 254	254 Organizational Design and Behavior**	PS 323 Democratic Systems PS 324 Communist Systems	Responsibility
BA 256	Business Policies and Corporate Responsibilities	PS 325 Politics of Developing Areas	4. Quantitative Business Analysis. If this area take Mth 105-106, or Mth 111-112 as a seque
BA 395- BA 398 Ant 270	396 Independent Research Topics Cultural Anthropology	Core incoments company served.	Required: BA 252 Op. Sys. & Mgmt.
Two sen	nesters of a Foreign Language at		Electives: Three of the following:
the 204	competency.	MANAGEMENT AND D	BA 217 Logistics Ec 241 Microeconomics
*A Com concer	puter Science course may not be used to satisfy I participation elective.	both the Business Administration core and serve as a	

BA 101. INTRODUCTION TO BUSINESS

#### **Three credits** Designed to orient students to the framework within which business enterprises function in the economy. Stress is placed on organization and management of the enterprise, decision-making within the enterprise, small business operations, and problems of financial resources.

#### BA 114. SALESMANSHIP

# **Three credits**

The role of salesmanship in the economic system and motives behind all buying. The principles and art of selling with emphasis on industrial selling; the techniques of prospecting, presentation, handling objections, closing, follow-through including sales demonstration.

#### BA 209. BUSINESS CORRESPONDENCE AND REPORTS Three credits

An emphasis on written communications: practice in writing major classification of business letters; persuasive requests and refusals, inquiry, order, sales, application, credit, collection,

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Business Administration Minor (Prerequisite: Ec 101, 102) (24 credits, including Ec 101, 102)

mance		
Required:	Acc 121	Elementary Acc I
	Acc 122	Elementary Acc II
Electives:	Two of th	he following:
	Ec 201	Money and Banking
	Ec 226	International Investment
		and Finance

Required: BA 222 Principles of Marketing

Electives: Five of the following:

The School of Business and Economics

2. Marketing

BA 225 Managerial Finance BA 226 Investments Ec 236 Public Finance

BA 241 Life Insurance

BA 261 Principles of Retailing BA 264 Retail Buying SCT 302 Public Relations

BA 251 Principles of Management BA 254 Organiz. Design &

BA 271 Human Resources Management Ec 223 Collective Bargaining

as a sequence in the Math/Science core. Ec 231 Statistics I mt.

Ec 242 Advanced Microeconomics

Mth 262 Operations Research

Behavior

this area is chosen, the student is advised to

Ec 232 Statistics II

![](_page_51_Picture_32.jpeg)

#### The School of Business and Economics

Three credits

**Three credits** 

Three credits

Three credits

**Three credits** 

Three credits

Three credits

**Three credits** 

cases

#### The School of Business and Economics

Three credits BA 212. GOVERNMENT AND BUSINESS A study of the relationship of government to economic enterprises with special attention to conditions in the United States; the regulatory activities of government agencies; administrative methods, objectives, and results of governmental control. Reference is made to monopoly and quasi-monopoly situations, public utilities, trusts, transportation, extractive industries, and public enterprise.

#### **BA 216. ADVERTISING**

Social and economic impacts of advertising; ethics and truth in advertising; analysis of current advertising; a study of the elements of product and market analysis; the elements of advertising layout, appeals, copy, art, display, trademarks, and various media.

#### **BA 217. LOGISTICS AND DISTRIBUTION MANAGEMENT** Three credits

Development and organization of the domestic and international transportation system; regulatory considerations. Distribution management practices; e.g., rates, routes, scheduling, services, insurance, materials handling, warehousing.

#### BA 220. REAL ESTATE

Economic theories of value applied to real estate, valuation as a guide to decisions, market analysis, real estate, finance, property development and management, locational theory and site selection.

#### **BA 222. MARKETING**

The fundamentals and functions of the marketing system, its institutions and their importance in the economy are studied; marketing pricing policies and practices are investigated; reference is made to marketing activities and government participation.

#### **BA 225. MANAGERIAL FINANCE**

A study of the financial theories and decision-making models relating to: financial analysis and planning; working capital management; cash budgeting; capital asset acquisitions; capital asset financing; cost of capital; capital structuring; acquisitions; divestitures; and reorganizations.

#### **BA 226. INVESTMENTS**

A survey of the features and characteristics of investment instruments; the operation and regulation of security markets; the techniques of security analysis and valuation; financial intermediaries; modern and traditional portfolio theory and management.

#### BA 231. BUSINESS LAW - INTRODUCTION, CONTRACTS, AND SALES

The foundation for all subjects in the field of business law. The nature, classification, and sources of law. Examination of the essential elements of a contract and the nature of contract rights under both the common law and the Uniform Commercial Code. A study of the law of sales of goods: the transfer of title and risk of loss, warranties and product liability, and secured transactions.

#### BA 232. BUSINESS LAW - AGENCY, PARTNERSHIPS, CORPORATIONS, AND REAL PROPERTY

A study of the principles of law governing partnerships and corporations, with respect to formation, operation, internal relationships, and dissolution, as well as the advantages and disadvantages of these forms of business association. A survey of the law of real property, nature and types of interests in land. A discussion of deeds and their prerequisites.

### BA 234. BUSINESS LAW - PROPERTY

The law of real property, nature and types of interests in land. A discussion of deeds and their

BA 240. PROPERTY INSURANCE Three credits This course is a study of the fundamentals of fire, casualty, and marine insurance.

BA 241. LIFE INSURANCE **Three credits** This course is a study of the principles, practices, and uses of life insurance from the overall viewpoint of the product, cost, market, and industry.

#### BA 251. PRINCIPLES OF MANAGEMENT

**Three credits** 

Three credits

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Nature and evolution of management thought. Fundamental universal concepts covered: decision-making, policy formulation, planning, organizing, staffing, actuating, communication, directing, controlling, etc. Views management as process of integrating knowledge developed by many disciplines. Social and ethical dimensions of the management process summarized.

#### BA 252. OPERATIONS AND SYSTEMS MANAGEMENT **Three credits**

Principles of decision-making, systems design, introduction to quantitative tools of analysis; fundamentals of production, inventory, financial, and distribution management.

#### BA 254. ORGANIZATIONAL DESIGN AND BEHAVIOR

A behavioral science approach to understanding individual, formal, and informal group behavior; macro- and micro-organizational structures, motivation and leadership theories, group influences, conflicts, decision-making, communication, with emphasis on behavioral science applications in developing organizational effectiveness.

## **BA 256. BUSINESS POLICIES AND**

**CORPORATE RESPONSIBILITY** Three credits Integration of background acquired by the student to policy issues. Study of current ideologies

**BA 261. PRINCIPLES OF RETAILING** A basic course that discusses opportunities in retailing; types of retail institutions; problems of store policy, store location; study of organizational structure of department stores; organization

## and functions of all store divisions. **BA 264. RETAIL BUYING**

BA 198/298/398. TOPICS

A study of the principles of what, when, and how much to buy; a study of customer demand. Special attention is given to the technique of buying; markups, markdowns, stock turns, and other factors that are necessary to keep lines complete. Prerequisite: BA 261.

#### **BA 271. HUMAN RESOURCES MANAGEMENT**

A survey of the activities and decision-making functions of the human resources manager, including manpower planning, employee rights, EEOC dealings, training and development, employee evaluation techniques, compensation packages, and personnel recruitment.

### **BA 395-396. INDEPENDENT RESEARCH**

Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required.

**BA 397. SEMINAR** (Maximum of three credits per student) One to three credits Presentation and discussions of selected topics.

## **Three credits**

#### **Three credits**

One to three credits

and ethics within the institutional framework of the capitalist tradition. Discussion of actual **Three credits** 

prerequisites. The rights and duties of the landowner to the public. Rights of the government versus rights of the landowner. The landlord-tenant relationship, the mortgagor-mortgagerelationship.

Lectures on subjects of special current interest in business which are not covered in other courses.

#### The College of Arts and Sciences

Maior Electives

**Core Requirements** 

**Free Electives** 

3

6

6

3

3

6

CHEMISTRY

Professor Swain, Chairman; Professors Bohning, Faut, Rozelle, Salley, Stine; Assistant Professor Chebolu; Adjunct Professor Hayden; Instructor Cohen; Laboratory Manager Bianco.

Total minimum number of credits required for a B.S. degree - 128. Total minimum number of credits required for a B.A. degree - 123. Total minimum number of credits required for a minor -22.

The chemistry curriculum is designed to provide a comprehensive background in the fundamentals of the science and to contribute to the general education of the student. Graduates with a B.S. degree may find industrial or government employment or continue advanced studies in a graduate or professional school. The B.A. degree is available for students who need additional flexibility to prepare for a career in secondary education, the health professions (such as medicine, dentistry, or pharmacy), law, business, engineering, computer science, or other related areas. Utilizing existing courses and programs, it is also possible for a student to achieve a B.A. degree witha double major in chemistry and computer science. In all cases students will choose electives for the various career options after consultation with departmental advisers.

A minor in Chemistry consists of the completion of 22 credits in chemistry, including Chm 115 and Chm 116 (or Chm 118). Selection of other courses must be in keeping with the existing prerequisites as specified in this Bulletin.

Wilkes is approved by the American Chemical Society for the professional training of chemists. Students who complete the B.S. program may be certified for membership eligibility in the Society at graduation.

Required courses are indicated in the following suggested curricular outlines which are based on an extensive prerequisite structure. The order of the courses presented in this sequential arrangement is a suggested one. Changes in the order of the courses may be made on an advising basis.

## The College of Arts and Sciences

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## **Recommended Course Sequences for a Degree in Chemistry**

First Semester			Second Seme	ester	
	B.A.	B.S.		B.A.	B.S.
Chm 115 Elements and Compounds	4	4	Chm 116 The Chemical Reaction	4	4
Eng 101 Composition I	3	3	Eng 102 Composition II	3	3
Mth 111 Calculus I	4	4	Mth 112 Calculus II	4	4
Core Requirements	6	6	CS Elective	3	3
PE 100 Activity	0	0	Free Electives	3	3
			PE 100 Activity	0	0
	17	17		17	17
Third Semes	ter		Fourth Seme	ster	
	B.A.	B.S.		BA	B.S.
Chm 231 Organic Chemistry I	4	4	Chm 232 Organic	4	4
Chm 222 Systematic Inorganic Chemistry	4	4	Chm 241 Inorganic Quantitative Analysis	4	4
Mth 211 Intro. Linear Algebra and Differential	4	4	Mth 212 Multivariable	n ( <del>dei</del> n	4
Equations			Phy 201 General	4	4
Core Requirements	3	3	Physics I		
PE 100 Activity	0	0	Core Requirements	3	_
			PE 100 Activity	0	0
	15	15		15	16
Fifth Semest	er		Sixth Semes	ter	
	B.A.	B.S.		B.A.	B.S.
Chm 251 Physical Chemistry I	4	4	Chm 252 Physical Chemistry II	4	4
Chm 276 The History and	3	3	Chm 274 Chemical	194-101	4
Literature of Chemistry			Structure Determination		
Phy 202 General Physics II	4	4	Phy 203 General Physics III	3	3
Core Requirements	3	3	Core Requirements	9	6
	14	14		16	17
Seventh Seme	ster		Eighth Semes	ter	
	B.A.	B.S.	a har denderstation freite fa	B.A.	B.S.
Chm 325 Advanced	10-10	3	Major Electives	3	3
Inorganic Chemistry			Chm 397 Seminar	1	1
Chm 397 Seminar	1	1	Free Electives	3	3

Eighth Sem	ester	
	B.A.	B.S
Major Electives	3	:
Chm 397 Seminar	1	and a
Free Electives	3	:
Core Requirements	6	9
	13	16

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Page 90			The College of Arts and Sciences	The College of Arts and Sciences
Summary of Credit distribution	B.A.	B.S.		CHM 116. THE CHEMICAL REACTION A detailed study of chemical equilibria in aqueous solut
Chemistry Credits	43	50		Prerequisite: Chm 115.
Mathematics Credits	12	16		
Physics Credits	11	11		CHM 118. CHEMISTRY FOR ENGINEERS
Core Credits	39	39		An introduction to chemical equilibria, electrochemistr
Computer Science Credits	3	3		and the chemistry of selected metals and nonmetals. Cla
Free Elective Gredits	15	9		hours a week; problem session, one hour a week. Fee:
Total Credits	123	128		Prerequisite: Crim 115, engineering majors only.
B.A. degree students must e chemistry department.	elect a mi	nimum of three 3	00-level courses, two of which must be in the	CHM 130. ORGANIC AND BIOLOGICAL CHH An introduction to the structure and reactions of carbo study of interactions of biologically active compounds
B.S. degree students must required 300-level courses.	elect a m	inimum of two 3	00-level chemistry courses in addition to the	nucleic acids. Not open to chemistry majors. Lecture, hours a week; problem session, one hour a week. Fee:
Seminar and Cooperative Ective.	ducation I	may not be count	ted as an advanced 300-level chemistry elec-	CHM 222. SYSTEMATIC INORGANIC CHEMI
Independent Research (Chm tive if six credits are taken.	n 395-396	δ) may be counte	d as one advanced 300-level chemistry elec-	A systematic description of the chemistry of the main chemical principles. Fundamental techniques of inor week; laboratory, three hours a week. Fee: \$35.
All chemistry majors must c	omplete	three credit-hours	s of Computer Science courses.	Prerequisite: Chm 116.

Three credits each

Four credits

Four credits

one of the core humanities requirements. The language of choice should be German, Russian, or French in that order of priority.

The Chemistry Department strongly recommends that students elect SCT 101, Public Speaking.

The Chemistry Department strongly recommends that students elect a foreign language to satisfy

#### CHM 99. BASIC MATHEMATICS FOR **INTRODUCTORY CHEMISTRY**

No credit A remedial course for students desiring an intensive survey of basic mathematical principles used in beginning chemistry courses. Topics include arithmetical operations, exponential notation, dimensional analysis, the writing and solving of equations, graphing, logarithms, and the use of a calculator.

#### CHM 101-102. CHEMICAL SCIENCE

Applications of chemistry in daily life, emphasizing nuclear chemistry, agricultural chemistry, and the chemistry of food and drugs. This course is primarily intended for students who take no other chemistry courses. It does not provide prerequisite background for any other chemistry course.

Prerequisite for Chm 102, Chm 101.

#### CHM 111. INTRODUCTION TO CHEMICAL REACTIONS **AND PRINCIPLES**

Three major areas of emphasis will be developed: descriptive inorganic chemistry; acids, bases, and buffers; and radiochemistry. These areas will include gas laws, oxidation-reduction, equilibrium, stoichiometry, the periodic table, and solutions. Not open to chemistry majors. Class, three hours a week; laboratory, three hours a week; problem session, one hour a week. Fee: \$35.

#### CHM 115. ELEMENTS AND COMPOUNDS

Emphasis is placed on the periodic table and stoichiometry, including chemical properties, physical states, and structure. Class, three hours a week; laboratory, three hours a week; problem session, one hour a week. Fee: \$35.

## Prerequisite: Chm 231.

CHM 232. ORGANIC CHEMISTRY II

CHM 241. INORGANIC QUANTITATIVE ANALYSIS Four credits An introduction to the theory and practice of typical analyses: volumetric, gravimetric, and instrumental. Class, two hours a week; laboratory, six hours a week; pre-lab session, one hour a week. Fee: \$45.

Prerequisite: Chm 116.

## CHM 251. PHYSICAL CHEMISTRY I

The first and second laws of thermodynamics are developed, leading to an emphasis on the applications of the free energy concept: electrochemistry, the phase rule, and colligative properties. Chemical kinetics is introduced. Class, three hours a week; laboratory, three hours a week. Fee: \$35.

Prerequisite: Chm 116, Mth 106 or Mth 211, Phy 106 or Phy 202.

#### CHM 252. PHYSICAL CHEMISTRY II

Elementary quantum theory, kinetic molecular theory, and nuclear chemistry are studied. The molecular orbital theory and other approximate methods of quantum theory are developed. Statistical mechanics and surface chemistry are introduced. Class, three hours a week; laboratory, three hours a week. Fee: \$35.

Prerequisite: Chm 251

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Four credits tion. Class, three hours a week; laboraweek. Fee: \$35.

#### **Three credits** ry, thermodynamics, chemical kinetics, ass, two hours a week; laboratory, three \$35.

EMISTRY Four credits on compounds as a background for the s such as carbohydrates, proteins, and three hours a week; laboratory, three \$35.

#### ISTRY

Four credits group elements based on fundamental ganic synthesis. Class, three hours a

#### CHM 231. ORGANIC CHEMISTRY I

Four credits An introduction to the chemistry of carbon compounds which develops the theoretical principles underlying the mysterious "vital force" from which all organic materials were supposedly derived. These principles will be investigated and applied in the laboratory. Class, three hours a week; laboratory, three hours a week; pre-lab session, one hour a week. Fee: \$35. Prerequisite: Chm 116 or Chm 118.

#### Four credits

A continuation of Chm 231 with emphasis on modern organic syntheses. The laboratory integrates syntheses, isolation, analysis, and instrumentation. Class, three hours a week; laboratory, three hours a week; pre-lab session, one hour a week. Fee: \$35.

Four credits

Four credits

![](_page_54_Picture_34.jpeg)

#### The College of Arts and Sciences

Three credits

**Three credits** 

**Three credits** 

**Three credits** 

#### The College of Arts and Sciences

CHM 397. SEMINAR

#### Page 93

**One credit** 

#### CHM 274. CHEMICAL STRUCTURE DETERMINATION Four credits A study of structure determination techniques with emphasis on organic, inorganic, and biochemical molecules. Techniques include nuclear magnetic resonance, infrared, ultraviolet, visible, and mass spectroscopy, with applications of group theory to spectroscopic investigations. Fee: \$45

Prerequisite: Chm 222, 232, 251.

#### CHM 276. THE HISTORY AND LITERATURE OF CHEMISTRY Three credits

The nature and use of the important sources of chemical information. The historical foundation of modern chemistry is considered through the development of the literature. Laboratory problems emphasize techniques of information retrieval from journals, abstracts, and other source material. Literature preparation for Independent Research (Chm 395-396) is included. Class, two hours a week; library laboratory, three hours a week.

#### Prerequisite: Completion of twenty-four chemistry credits.

#### CHM 325. ADVANCED INORGANIC CHEMISTRY

Introduction to ligand field theory; chemistry of the first transition series, organometallic, and II acceptor compounds; mechanisms of inorganic reactions. Prerequisite: Chm 222 and 252.

#### CHM 335. ADVANCED ORGANIC CHEMISTRY

An intensive treatment of the concepts of physical organic chemistry with emphasis on the mechanisms of homogeneous organic reactions and the physiochemical methods for determining the structure of organic molecules. Prerequisite: Chm 232.

### CHM 344. ADVANCED ANALYTICAL CHEMISTRY

Four credits The theory and application of modern techniques and instrumental procedures, such as spectrophotometric, electro-analytical, and chromatographic. Theory and practice of analysis of more complex materials. Class, two hours a week; laboratory, six hours a week. Fee: \$45. Prerequisite: Chm 252.

#### CHM 346. POLYMER CHEMISTRY

Introduction to high polymers as an engineering material and the mechanical, electrical, and optical properties of polymers. Class, three hours a week. (same as MaE 332) Prerequisite: Junior or senior standing.

#### CHM 356. ADVANCED PHYSICAL CHEMISTRY

Three credits A detailed examination of statistical thermodynamics, advanced kinetics, quantum theory, and spectroscopy. Prerequisite: Chm 252.

#### CHM 361. BIOCHEMISTRY I

A study of the physical and chemical properties of biological molecules with emphasis on physical methods of biochemistry, proteins, enzyme kinetics, bioenergetics, nucleic acids, and carbohydrates Prerequisite: Chm 232

CHM 362. BIOCHEMISTRY II	Three credit
A study of metabolism with emphasis on metabolic regulation.	
Prerequisite: Chm 232.	

#### CHM 395-396. INDEPENDENT RESEARCH One to three credits each

Presentations and discussions of selected topics in chemistry conducted by senior chemistry majors, staff, and visiting lecturers. All chemistry majors are encouraged to attend the meetings Prerequisite: Approval of department chairman is required.

#### CHM 198/298/398. TOPICS

Variable credit

21

A study of topics of special interest not extensively treated in regularly offered courses. Prerequisite: Permission of instructor.

Students without the indicated prerequisites for 200- and 300-level chemistry courses may enroll after written permission of the instructor has been approved by the department chairman.

## **COMPUTER INFORMATION SYSTEMS**

#### Professor Sours, Chairman.

Total minimum number of credits required for a B.S. degree - 122. Total minimum number of credits required for a minor in Management Information Systems - 21.

An interdisciplinary program leading to the B.S. degree with a major in Computer Information Systems is offered by the Department of Mathematics and Computer Science, in cooperation with the School of Business and Economics. Also available is a minor in Management Information Systems. (Students majoring in Computer Information Systems are not permitted to obtain a minor in Management Information Systems.)

#### **Major in Computer Information Systems**

The CIS program is concerned mainly with the use of computer systems in business and industrial organizations. Its principal subject matter includes the study of systems analysis, systems design and computer programming, along with other analytical and business areas which are pertinent to the development, implementation, and maintenance of information systems.

#### **Minor in Management Information Systems**

	-		
Required courses		credit hours	
CS 124, CS 224, CS 324, and CS 325		12	
BA 251		3	
Any two among:			
BA 252, BA 254, BA 256		6	

Independent study and research for advanced students in the field of the major under the dire tion of a staff member. A research paper at a level significantly beyond a term paper is required. Cannot be taken for credit before the seventh semester but may be a continuation of work begun before the seventh semester. Fee: one credit \$25, two credits \$35, three credits \$45.

Prerequisite: Chm 276.

Required courses for a Computer Information Systems major are indicated in the following recommended curriculum outline.

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Second Semester

**Fourth Semester** CS 123 FORTRAN Programming 16

3

3

15

9

15

3

3

9 15

Eng 102 Composition II CS 124 COBOL Programming Mth 106 Calculus for Life, Managerial, and Social Sciences II Acc 122 Elementary Accounting II

Core Requirements PE 100 Activity

Management

## The College of Arts and Sciences

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## **Recommended Course Sequence for a Degree in Computer Information Systems**

NOTE: All core requirements should be chosen to satisfy the General Core Requirements listed on pages 46-47.

16

3

3

3

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First Semester	
Eng 101 Composition I	3
CS 115 Survey of Computers &	3
Data Processing	
Mth 105 Calculus for Life,	4
Managerial, and Social Sciences I	
Acc 121 Elementary Accounting I	3
Core Requirements	3
PE 100 Activity	0

#### **Third Semester**

CS 224 Advanced COBOL and File Management BA 251 Principles of Management Mth 150 Elementary Statistics Core Requirements PE 100 Activity

#### Fifth Semester

15

BA 225 Managerial Finance 3 BA 222 Marketing Core Requirements 9 Core Requirements

#### Seventh Semester CS/Mth Elective\* SCT 101 Public Speaking Eng 202 Technical Writing

Free Electives

**Core Requirements** PE 100 Activity

BA 252 Operations and Systems

## **Sixth Semester** CS 324 Systems Analysis 3 CS 325 Database Management

**Eighth Semester** CS/Mth Elective\* BA 254 Organizational Design & Behavior (or) BA 256 Business Policies

& Corporate Responsibility

**Free Electives** 

	credit hours
CS 115, 123, 124, 224, 324, and 325	18
Mth/CS Electives	6
Acc 101-102, BA 222, 225, 251, and 252	18
PA 254 or BA 256	3
Mth 105, 106, and 150	11
Eng 101-102	6
Eng 202	3
SCT 101	3
Core Electives	39
Free Electives	15
	122

Summary of Minimum Credit Distribution for the CIS Major:

![](_page_56_Picture_16.jpeg)

#### \*CS/Mth electives must include two of the following:

CS 260, CS 262, CS 321, CS 335, or Mth 354.

#### The College of Arts and Sciences

#### The College of Arts and Sciences

Mth 2

and CS 22

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## COMPUTER SCIENCE

Professor Sours, Chairman; Professor Emeritus Richards; Professors Merrill, Tillman, Wong: Associate Professors Berard, Decosmo, Earl, Koch, Salsburg; Assistant Professors Anderson, Simmons; Instructors Kenney, Plavchak.

Total minimum number of credits required for a B.A. degree -123. Total minimum number of credits required for a B.S. degree -125. Total minimum number of credits required for a minor -22.

A broad program of study leading to a B.A. or B.S. degree with a major or minor in computer science is offered by the Department of Mathematics and Computer Science. The Department of Mathematics and Computer Science also offers programs in mathematics and statistics (see page 156), and in computer information systems and management information systems (see page 93).

The Computer Science curriculum consists of theoretical as well as application-oriented courses and is based on a strong foundation in mathematics. The B.A. option is intended for those interested in management and social sciences, whereas the B.S. option requires greater concentration in the natural and physical sciences. With appropriate choices of major electives, students can prepare for graduate study and research in the discipline, or for employment in government or industry. Students are encouraged, through the attainment of a minor or second major, to acquire competence in an area that lends itself to meaningful computer applications.

A minor in Computer Science consists of the following:

<b>Kequired courses</b>	credit hou
CS 123, CS 124, CS 225, CS 227	13
Electives: any one of the following matched triples:	9
a. CS 224, CS 324, CS 325	22
b. CS 230, CS 262, CS 321	
c. CS 230, CS 320, CS 329	
d. CS 230, CS 323, CS 327	
e. CS 230, CS 323, CS 328	
f. CS 230, CS 326, CS 330	
g. CS 230, CS 328, CS 364	

Required courses for a computer science major are indicated in the following recommended curriculum outlines, which are based on an extensive prerequisite structure.

## Recommended Course Sequences for a Degree in Computer Science

NOTE: All core requirements should be chosen to satisfy the General Core Requirements listed on pages 46-47, except that science electives must be in accordance with the Department's requirements specified on page 98.

First Semester			Second Semester			
B.A. B.S.				B.A.	B.S.	
Mth 111 Calculus I	4	4	Mth 112 Calculus II	4	4	
Eng 101 Composition I	3	3	Eng 102 Composition II	3	3	
CS 123 FORTRAN Programming	3	3	CS 225 Advanced Programming-Pascal	4	4	
Core Requirements	6	6	Core Requirements	6	6	
PE 100 Activity	0	0	PE 100 Activity	0	0	
	16	16		17	17	

Third Semes	ster		Fourth Semest	ter	
	B.A.	B.S.		B.A.	B.S.
2 Set Theory	3	3	Mth 214 Linear Algebra	3	3
Logic			CS 230 Machine Language	3	3
7 Computer Data	3	3	Science Elective <sup>1</sup>	3	3
ctures			Core Requirements	6	6
4 COBOL	3	3	PE 100 Activity	0	0
ramming				15	15
equirements	6	6		15	15
) Activity	0	0			

Fifth Semester		Sixth Semester			
	B.A.	B.S.		B.A.	B.5
Mth/CS Electives <sup>2</sup>	3	6	Mth/CS Electives <sup>2</sup>	3	2
Science Elective <sup>1</sup>	3	4	Science Elective <sup>1</sup>	3	Ξ.
Core Requirements	6	6	Core Requirements	3	
Free Electives	3	-	Free Electives	6	
	15	16		15	1
Seventh Sen	nester		Eighth Sem	ester	
	B.A.	B.S.		B.A.	B.S

Mth/CS Electives<sup>2</sup> 3 3 Mth/CS Electives<sup>2</sup> 3 3 12 Free Electives 12 Free Electives 12 12 15 15 15 15

1 See page 98 for the Department's requirements regarding science electives. 2 See page 98 for the Department's requirements regarding Mth/CS electives.

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#### The College of Arts and Sciences

## The College of Arts and Sciences

#### Science Electives for Computer Science Majors:

- B.A. candidates: Any three courses, including a two-semester sequence, in Biology, Chemistry, Earth and Environmental Sciences, or Physics.
- B.S. candidates: Any two courses from one of these departments: Biology, Chemistry, Earth and Environmental Sciences, or Physics, and

One additional course in Biology, Chemistry, Earth and Environmental Sciences, Physics, EE 342 or any Engineering course not cross-listed in Computer Science. (All three courses must be numbered above 200 except that Bio 121, 122, Chm 115, 116, or 118 are also acceptable in this requirement.)

### Mathematics/Computer Science Electives for Computer Science **Majors:**

B.A. candidates: Two of the following courses: CS 262, 321, or 324; and Any two Mth or CS courses numbered above 200.

B.S. car	ndidates:	Two of the following	courses: C	\$ 320,	323,	326,	328,	or 330;
			and	1				

Any three Mth or CS courses numbered above 200.

#### **Summary of Minimum Credit Distribution for Computer Science Majors:**

	D.A.	D.3.	
Mth 111, 112, 202, and 214	14	14	
CS 123, 124, 225, 227, and 230	16	16	
Mth/CS Electives	12	15	
Science Electives	9	11	
Eng 101-102	6	6	
Core Requirements	33	33	
Free Electives	33	30	
	123	125	

#### CS 115. SURVEY OF COMPUTERS AND DATA PROCESSING

Introduction to computers, both large and small, but with emphasis on, and hands-on experience with, personal computers (Apple II, Macintosh, IBM-PC). Includes some BASIC programming and a survey of current commercial software (Multiplan, Minitab, word processing, etc.). Not open to students who have prior credit in any 200-level CS course. Computer science majors will not receive credit in their major for CS 115.

Offered every fall and spring.

#### CS 122. BASIC PROGRAMMING

Introduction to computer programming using the BASIC language, the principal high level language of microcomputers and processors. A maximum of three credits will be allowed for this course and Mth 102. Not open to students who have prior credit in CS 123. Fee: \$30. (same as Egr 241) Offered every summer.

CS 123. FORTRAN PROGRAMMING Three credits Structured programming, algorithm design, and introduction to programming using FOR-TRAN 77. The computer is used to solve problems from a variety of fields. Fee: \$45. (same as Egr 244)

Prerequisite: Secondary mathematics including geometry and algebra II. Offered every fall, spring, and summer.

## CS 124. COBOL PROGRAMMING

#### Three credits

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Introduction to computer programming using the American National Standard Common Business Oriented Language. The computer is used to solve problems commonly found in a business environment. Fee: \$45. Offered every fall, spring, and summer.

CS 224. ADVANCED COBOL AND FILE MANAGEMENT Three credits

A study of advanced programming techniques using ANS COBOL. Topics include efficiency techniques, modular programming, table searching, indexed, direct, and relative file techniques. Fee: \$45.

Prerequisite: CS 124. Offered every spring and summer.

#### CS 225. ADVANCED PROGRAMMING - PASCAL

Four credits A study of advanced programming techniques and the Pascal programming language. Topics include basic and user-defined data types, their use and their machine implementation, structured programming, recursion, efficient data organization. Fee: \$45. (same as Egr 245) Prerequisite: CS 123/Egr 244.

Offered every spring and fall.

#### CS 227. COMPUTER DATA STRUCTURES Three credits

A study of the use of a high-level language to implement complex data structures and their application to sorting and searching. These structures include lists, trees, graphs, networks and storage allocation. Fee: \$45. (same as EE 343) Prerequisite: CS 225/Egr 245.

Offered every fall.

#### CS 230. MACHINE LANGUAGE

#### **Three credits**

Basic principles of assembly language programming. Computer organization and representation of numbers, strings, arrays, list structures at the machine level. Examples utilize all levels of computer architecture. Fee: \$45. (same as Egr 342) Prerequisite: CS 225/Egr 245.

Offered every spring.

Three credits

One credit

#### CS 260. LINEAR PROGRAMMING

#### **Three credits**

Graphical linear programming, simplex algorithm and sensitivity analysis. Special L.P. models such as the transportation problem, transshipment problem, and assignment problem. May include integer programming, branch and bound algorithm, geometric programming, goal programming. (same as Mth 260)

Prerequisite: Mth 106 and CS 123. Offered in the fall semester of odd years.

#### **CS 262. OPERATIONS RESEARCH**

## **Three credits**

A survey of operations research topics such as decision analysis, inventory models, queueing models, dynamic programming, network models, heuristic models, and non-linear programming. (same as Mth 262)

Prerequisite: CS 123; Mth 105-106 or Mth 111-112; and some elementary knowledge of matrices. Offered every spring.

#### The College of Arts and Sciences

Three credits

Three credits

Three credits

Three credits

Three credits

Three credits

#### CS 320. LOGIC AND SWITCHING CIRCUITS

Application of Boolean algebra to the design of Number system logic networks, solid-state switching circuits and devices. Minimization techniques to the synthesis of combinatorial switching circuits including AND-OR and NAND-NOR logic. Analysis and synthesis of sequential switching circuits clocked and asynchronous operation. Effect of microelectronic technology on logic design optimization. Fault masking by redundancy techniques. (see EE 341)

Prerequisite: EE 211.

Offered every fall.

#### CS 321. SIMULATION AND DATA ANALYSIS

Methods of handling large data bases including statistical analysis and computer simulations. The emphasis will be upon discrete simulation models with a discussion of relevant computer languages, GPSS, GASP, SIMSCRIPT, and/or SLAM.

Prerequisite: CS 224 or CS 225/Egr 245 and one year of calculus. Offered in the fall semester of even years.

#### CS 323. FORMAL LANGUAGES & AUTOMATA THEORY Three credits

This course formalizes many topics encountered in previous computing courses. Topics include languages, grammars, finite automata, regular expressions and grammars, context-free languages, push-down automata, turning machines and computability. Prerequisite: Mth 202 and CS 225/Egr 245.

Offered in the fall semester of even years.

#### CS 324. SYSTEMS ANALYSIS

A study of the design and implementation of large computer projects. Special emphasis is placed on applications to business systems.

Prerequisite: CS 224.

Offered every fall.

#### CS 325. DATA BASE MANAGEMENT

Practical experience in solving a large-scale computer problem including determination of data requirements, appropriate data organization, data manipulation procedures, implementation, testing and documentation.

Prerequisite: CS 324.

Offered every spring.

#### CS 326. OPERATING SYSTEM PRINCIPLES

Analysis of the computer operating systems including Batch, Timesharing, and Realtime systems. Topics include sequential and concurrent processes, processor and storage management, resource protection, processor multiplexing, and handling of interrupts from peripheral devices. (same as EE 344)

Prerequisite: CS 227/EE 343.

Offered in the fall semester of odd years.

#### CS 327. COMPILER DESIGN

A study of compiler design including language definition, syntactic analysis, lexical analysis, storage allocation, error detection and recovery, code generation and optimization problems. Prerequisite: CS 227/EE 343 and CS 323.

Offered in the spring semester of odd years.

## The College of Arts and Sciences

#### CS 328. ANALYSIS OF ALGORITHMS

Three credits Theoretical analysis of various algorithms. Topics are chosen from sorting, searching, selection, matrix multiplication and multiplication of real numbers, and various combinatorial algorithms

Prerequisite: CS 227/EE 343 and Mth 202. Offered in the spring semester of even years.

#### CS 329. MICROCOMPUTER OPERATION AND DESIGN

Three credits

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Microprocessor architecture, microcomputer design, and peripheral interfacing. Microprogramming, software systems, and representative applications. Associated laboratory experi-ments consider topics such as bus structure, programming, data conversion, interfacing, data acquisition, and computer control. Two hours lecture and one two-hour laboratory per week. Fee: \$45. (see EE 342) Prerequisite: CS 320/EE 341.

Offered every spring.

## CS 330. COMPUTER ARCHITECTURE Three credits

A study of the design, organization, and structure of computers, ranging from the microprocessors to the latest "supercomputers." (same as EE 346) Prerequisite: CS 230/Egr 342 or CS 329/EE 342. Offered in the spring semester of odd years.

## CS 335. ADVANCED DATABASE CONCEPTS Three credits

A continuation of CS 325. Concentration on the design of a large scale database system, current special hardware and software, and the role of a DBMS in an organization. Prerequisite: CS 325.

Offered in the fall semester of even years.

#### CS 364. NUMERICAL ANALYSIS

Numerical methods of differentiation, integration, solution of equations and of differential equations with emphasis on problems that lend themselves to solution using computers. (same as Mth 364)

Prerequisite: CS 123/EE 244 and Mth 211 or permission of instructor.

Offered in the spring semester of odd years.

## CS 367. COMPUTER GRAPHICS Three credits

#### Introduction to equipment and techniques used to generate graphical representations by computer. Discussion of the mathematical techniques necessary to draw objects in two- and threedimensional space. Emphasis on application programming and the use of a high-resolution color raster display.

Prerequisite: CS 227/EE 343.

Offered in the fall semester of even years.

#### CS 370. SPECIAL PROJECTS

#### Variable credit

The definition, formulation, programming, solution, documentation, and testing of a sophisti-cated problem or project under close faculty supervision. The project will be drawn from in-dustry, business, or governmental agency in the greater Wilkes-Barre area. The student will be expected to present a written report at the conclusion of the project. This course may be taken as part of the Cooperative Education Program. A student may apply at most six credits of CS 370 and a maximum of twelve credits in CS 370 and Cooperative Education 301-302-303-304 toward the graduation requirement in the computer science major. Prerequisite: Senior standing and approval of the department.

Variable credit

**Three credits** 

Study of one or more special topics in computer science. May be repeated for credit Prerequisite: Varies with topics studied.

#### The School of Engineering and Physical Sciences

The School of Engineering and Physical Sciences

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## EARTH AND ENVIRONMENTAL SCIENCES

Professor Bohning, Chairman; Professor Cox; Associate Professors Case, Pindzola, Redmond; Assistant Professor Klemow; Adjunct Professors Smith, Toothill.

### Total minimum number of credits required for a B.A. -129. Total minimum number of credits required for a B.S. -130. Total minimum number of credits required for a minor -18.

The Department of Earth and Environmental Sciences has two degree programs, both of which incorporate a strong background in all of the sciences and include extensive laboratory and field experience. The interdisciplinary nature of the department provides the student with a unique breadth of understanding of the principles and concepts of the Earth and Environmental Sciences while emphasizing methods of analysis and experimentation of very complex, dynamic, and interactive quality; cooperative internships with environmental organizations and industries are encouraged.

The B.S. degree program emphasizes the technical and analysis aspects of the Earth and Environmental Sciences and is designed for those students intending to work as scientists in laboratory, field, or research positions. Students with this degree may enter graduate programs in Geology, Meteorology, and Environmental Science. A related degree in Environmental Engineering is offered by the Engineering Department in conjunction with EES.

The B.A. degree program emphasizes human interactions with the Earth and Environmental Sciences and as such, while still requiring an extensive background in the sciences, includes additional coursework in the social sciences and political science. The student is required to choose an appropriate minor so as to acquire an expertise in areas such as technical writing, business administration, or political science. Students with this degree would be trained to work in Environmental Science policy-making and administration. Another option in the B.A. degree is to satisfy the requirements leading to a Pennsylvania Secondary Teaching Certificate with certification in Earth and Space Science.

A minor can be obtained by students with a demonstrated expertise in Earth and Environmental Sciences as determined by the Earth and Environmental Sciences faculty. The minimum requirement can be met by students who have completed 18 EES credits (at least 12 credits at the 200-level or above) but only those course credits for which a student has achieved a grade of 2.0 or higher will count toward this minimum.

## Recommended Course Sequences for a B.A. Degree in Earth and Environmental Sciences

First Semester	TE	CHNICAL	POLITICAL SCIENCE	BUSINESS ADMIN.	EARTH & SPACE SCIENCE ED.
Eng 101 Composition		3	3	3	3
Mth 105 Intro. to Calculus I		4	4	4	4
PE 100 Activity		0	0	0	0
Bio 121 Modern Biology I		4	4	4	responsive and the
Ec 101 Economics I		_	14110	3	End 152 Wester
PS 102 Intro. to American Politics		_	3	6v2-0100	Company Science
Ed 101 Practicum in Education		-	-3	-3748	Human Dies Elec
Humanities Elective		3	3	3	6
Social Science Elective		3	_	- 100	3
		17	17	17	17
		17	17	17	17
Second Semester					
Eug 102 Composition		0	0	0	0
Mth 106 Intro. to Coloulus II		3	3	3	3
PE 100 Activity		4	4	4	0
Bio 122 Modern Biology II		0	4	0	0
Ec 102 Economics II		4	4	4	
PS 105 Comparative Covernment		- 44	2	3	2 .0 .0
Ed 102 Practicum in Education			5		-
Core Arts Elective					2
Humanities Elective		3	3	3	5
Social Science Elective		3	5	3	3
			_	_	
		17	17	17	16
Third Semester					
EES 194 Intro. to Field Study		1	1	No.3 10 and	665 2 <b>1</b> 0 2460
EES 211 Physical Geology		4	4	4	4
Phy 105 Intro. to Physics		4	4	4	4
PE 100 Activity		0	0	0	0
Acc 101 Elementary Accounting I		-	_	3	Eng 202 Techn
Psy 101 General Psychology I		_	- V00k	inta Psychia	3
Eng 151 Western World Literature I		3	on Listing	istration Post	:PS 254 Admin
SCT 101 Fundamentals of Public Speaking		3	-	-	EES Elective
PS 218 Intro. to Public Administration		-	3		Free Elective >
Computer Science Elective		-	-	- 9950	3
Humanities Elective		-	3	3	Social-Science
		15			

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### The School of Engineering and Physical Sciences

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Fourth Semester	TECHNICAL WRITING	POLITICAL	BUSINESS ADMIN.	EARTH & SPAC Science ED.
EES 230 Ocean Science	4	4	4	4
EES 212 Historical Geology	ROMING T	_	-	3
Phy 106 Intro. to Physics	4	4	4	4
PE 100 Activity	0	0	0	0
Acc 102 Elementary Accounting II	Red - she	0.0-20	3	60.001 H-170
Ed 203i Special Methods of Teaching in the Sciences	Bavirono	ental Scie	-troober	3
Eng 152 Western World Literature II	3	e b-ker	-12.10	0102-10
Computer Science Elective	3	3	-	-
Humanities Elective		3	3	-
Statistics Elective	3	3	3	
Social Science Elective	0	0	0	3
	17	17	17	17

#### **Fifth Semester** Chm 115 Elements & Compounds 4 4 4 4 EES 251 Synoptic Meteorology 4 4 4 4 BA 251 Principles of Management \_ 3 -Eng 201 Advanced Composition 3 -Ed 201 Intro. to Education 3 \_ **Computer Science Elective** \_ -3 -Free Elective 3 3 3 1 Humanities Elective 3 \_ -3 3 3 Social Science Elective -Political Science Elective -3 -\_ 17 17 17 17

#### Sixth Semester

EES 240 Principles of Environmental Science	4	4	4
EES 252 Climatology		-	
BA 254 Organizational Design & Behavior	A COLORNAL	D A demi	3
Eng 202 Technical Writing	3		-
Ed 202 Educational Psychology	alita Toda	at the start	-
PS 354 Administrative Policy-Making	of (at Jeas	3	- Th
EES Elective	3	3	3
Free Elective	3	3	3

The School	of	Engineering	and	Physical	Sciences
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EARTH & SPACE TECHNICAL POLITICAL BUSINESS Seventh Semester WRITING ADMIN. SCIENCE ED. SCIENCE EES 391 Senior Projects I 1 1 1 \_ Ed 371 The Individual in the Classroom 3 -Ed 380 Professional Semester in Education \_ -\_ 15 3 \_ Eng 391 Projects in Writing \_ -\_\_\_\_ SCT 101 Fundamentals of Public Speaking -3 -**BA Elective** 3 \_ \_ \_ \_ 3 3 **Core Arts Elective** 3 \_ **EES Elective** 3 3 3 **English Elective** 3 \_ \_ 3 Free Elective \_\_\_\_ \_ \_ 3 Humanities Elective 3 3 --**Political Science Elective** 3 \_ -16 18 16 16 Eighth Semester EES 392 Senior Projects II 2 2 2 2 EES 280 Principles of Astronomy -----\_ 4 **BA Elective** \_ \_ 3 -**EES Elective** 6 6 6 3 **English Elective** 3 \_ \_ \_ Free Elective 3 \_ \_ -Humanities Elective 3 3 3 \_ **Political Science Elective** -3 \_ -14 14 14 12

![](_page_61_Picture_9.jpeg)

### The School of Engineering and Physical Sciences

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3

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14

### **Recommended Course Sequence for a B.S. Degree in Earth and Environmental Sciences**

First Semester		Second Semester
Eng 101 Composition	3	Eng 102 Composition
Bio 121 Modern Biology I.	4	Bio 122 Modern Biology II
Mth 111 Calculus I	4	Mth 112 Calculus II
PE 100 Activity	0	PE 100 Activity
Humanities Elective	3	Humanities Elective
Social Sciences Elective	3	Social Sciences Elective
	17	
Third Semester		Fourth Semester
EES 211 Physical Geology	4	EES 230 Ocean Science
EES 194 Intro. to Field Study	1	Computer Science Elective
Far 111 Intro. to Engineering	4	Statistics Elective
Phy 105 Introductory Physics	4	Phy 106 Introductory Physics
PE 100 Activity	0	PE 100 Activity
Humanities Elective	3	Humanities Elective
	16	
Fifth Semester		Sixth Semester
Chm 115 Elements & Compounds	4	Chm 116 Chemical Reaction
EES 251 Synoptic Meteorology	4	EES 240 Principles of
Phy 221 Instrumentation	3	Environmental Science
EES Elective	3	EES Elective
Social Science Elective	3	Social Science Elective
	17	
Seventh Semester		Eighth Semester
FES 391 Senior Projects I	1	EES 392 Senior Projects II
EES Elective	3	EES Elective
Core Arts Elective	3	Humanities Elective
Humanities Elective	3	Free Electives
Free Electives	6	
	16	
	10	
EES 110. SURVEY OF ASTRO	DNOMY	Three cre

Topics covered include stars, constellations, galaxies, sun, planets, and satellites. Intended for non-science majors. Two hours lecture and two hours laboratory/recitation. Fee: \$35.

and climate. Intended for non-science majors. Two hours lecture and two hours laboratory/ recitation. Fee: \$35.

The School of Engineering and Physical Sciences

**EES 120. SURVEY OF METEOROLOGY** 

#### **EES 125. SURVEY OF OCEANOGRAPHY Three credits** Topics covered include water properties, currents, waves, marine life, and beaches. Intended for non-science majors. Two hours lecture and two hours laboratory/recitation. Fee: \$35.

#### EES 130. ENVIRONMENTAL AWARENESS **Three credits** Topics covered include ecology, natural resources, pollution, and global food, energy, and population problems. Intended for non-science majors. Two hours lecture and two hours laboratory/recitation. Fee: \$35.

Topics covered include temperature, precipitation, wind, weather maps, weather phenomena,

EES 194. INTRODUCTION TO FIELD STUDY **One credit** An introduction to on-site application of field procedures and investigative techniques. One hour lecture, plus field trip. Fee: variable.

EES 211. PHYSICAL GEOLOGY Four credits Description, analysis, and laboratory studies of earth materials, structures, and processes, including earth's surface, interior, age, and origin. Three hours lecture and three hours laboratory. Fee: \$40.

EES 212. HISTORICAL GEOLOGY Three credits A study of the geologic record of the earth's formation and evolution, including methods of dating. Two hours lecture and two hours laboratory. Prerequisite: EES 211 or consent of instructor.

## Four credits

An interdisciplinary approach to the study of the fundamentals of oceanography emphasizing physical, chemical, and biological interrelationships. Three hours lecture and three hours laboratory. Fee: \$40.

EES 240. PRINCIPLES OF ENVIRONMENTAL SCIENCE Four credits A study of living systems as they are integrated with their physical environments and impacted by human activity. Three hours lecture and three hours laboratory. Fee: \$40.

#### **EES 251. SYNOPTIC METEOROLOGY** Four credits

Topics include surface and upper-air weather systems, weather phenomena, climate, and local weather influences. Synoptic map analysis and interpretation are emphasized. Three hours lecture and three hours laboratory. Fee: \$40.

#### **Three credits**

Investigation of controls and classification of climatic patterns. Also, study of data handling techniques, scales of climatic change, and practical applications of climatological results. Three hours lecture. Prerequisite: EES 251.

## EES 280. PRINCIPLES OF ASTRONOMY

cosmology. Three hours lecture and three hours laboratory. Fee: \$40.

Four credits Topics include orbital mechanics, results of planetary probes, spectra and stellar evolution, and

EES 305. HAZARDOUS & SOLID WASTE MANAGEMENT Three credits Assessment of the scope of the hazardous and solid waste problem and engineering and man-

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Three credits

#### EES 115. SURVEY OF GEOLOGY

Three credits

Topics covered include origin of earth, rocks and minerals, earthquakes, volcanoes, and continental motion. Intended for non-science majors. Two hours lecture and two hours laboratory/ recitation. Fee: \$35.

agement strategies. Lecture topics will include: case histories; groundwater pollution; regulations; human health effect; chemical, biological, thermal, and physical management strategies; and pollution abatement engineering. Three hours lecture.

Prerequisite: Chm 116 or 118 and EES 240.

EES 230. OCEAN SCIENCE

EES 252. CLIMATOLOGY

#### The School of Engineering and Physical Sciences

Three credits

Three credits

Four credits

Four credits

Three credits

Three credits

Three credits

Three credits

#### EES 320. HYDROLOGY

The physical elements and processes which constitute the hydrologic cycle are examined. Topics include floods and flood control, water resources, water uses, and ground water pollution problems. Two hours lecture and three hours laboratory. Fee: \$40. Prerequisite: EES 211.

#### EES 325. DYNAMIC METEOROLOGY

Topics include themodynamics; heat, moisture, and momentum transfer; and atmospheric forces and motion fields. Three hours lecture and one hour discussion. Prerequisite: EES 251, Mth 105 or 111, or permission of instructor.

#### EES 330. ADVANCED WATER QUALITY MEASUREMENTS

A study of sources, transport, and effects of aquatic pollutants and disruptions of natural biogeochemical cycles. Lecture topics include distribution of dissolved substances, carbonate and metal equilibria, eutrophication, wastewater engineering, pesticide and oil pollution, radiochemistry of water, thermal water pollution, aquatic toxicology, and groundwater pollution. Training in instrumentation, analytical techniques, sampling and computer data reduction methods used in monitoring and assessing water and soil pollution. Measurements are made both in the laboratory and the field. Two hours lecture and 6 hours laboratory per week. Fee: \$50.

Prerequisite: Chm 115 and 116 (or 118), EES 240.

### EES 331. ADVANCED AIR QUALITY MEASUREMENTS

A study of atmospheric pollutants, their sources and effects. Lecture topics include primary and secondary pollutants, stability and plume behavior, modeling, monitoring, standards, radiation, and air pollution abatement technology and engineering. Analytical procedures, instrumentation and data analysis used in monitoring and assessing air pollution and environmental health. Measurements are performed in the field and the laboratory. Two hours lecture and 6 hours laboratory per week. Fee: \$50.

Prerequisite: Chm 115 and 116 (or 118), EES 251 and 240.

#### EES 340. LIMNOLOGY

A study of the chemical, physical, and biological aspects of freshwater systems. Laboratory investigations will consist of in-depth analyses of local lakes and streams. Two hours lecture and three hours laboratory. Fee: \$40.

Prerequisite: Consent of instructor.

#### EES 370. GEOMORPHOLOGY

Land forms, their evolution, and the human role in changing the surface of the earth, utilization of geologic and hydrologic information, and field investigations. Two hours lecture and three hours laboratory. Fee: \$40.

Prerequisite: EES 211 and 320.

#### EES 375. GEOCHEMISTRY

Chemical properties of earth materials. Origin and abundance of the chemical elements and their distribution. Mineral equilibria. Stable and radioactive isotope variations due to geologic processes. Two hours lecture and three hours laboratory. Fee: \$40. Prerequisite: EES 211 and Chm 116, or consent of instructor.

#### EES 381. MINERALOGY

Ionic structure of minerals; physical properties and external form as consequences of structure; determination of minerals by physical tests. Two hours lecture and three hours laboratory. Fee: \$40.

Prerequisite: EES 211 and Chm 111 or 115.

#### The School of Engineering and Physical Sciences

#### EES 382. PETROLOGY

**Three credits** A study of the identification, classification, composition, genesis, and alteration of igneous, sedimentary, and metamorphic rocks and their relation to crustal processes and environments. Fee: \$40.

Prerequisite: EES 211 and 381.

#### EES 391. SENIOR PROJECTS I

**One credit** Design and development of selected projects in earth and environmental sciences and other related fields under the direction of a staff member. Technical as well as economical factors will be considered in the design. A professional paper and detailed progress report are required. Prerequisite: Senior standing in EES

#### EES 392. SENIOR PROJECTS II Two credits

Design and development of selected projects in earth and environmental sciences and other related fields under the direction of a staff member. Technical as well as economical factors will be considered in the design. A professional paper to be presented and discussed in an open forum is required.

Prerequisite: EES 391 or approval of the instructor.

### EES 393. PROFESSIONAL OFF-CAMPUS STUDY One to six credits This course is intended for students affiliated with the Cooperative Education Program. Students will present a written and oral report to the department faculty and guests at the conclu-sion of their project. Course may be repeated (with a maximum of six credits applied toward graduation)

Prerequisite: Senior standing and approval of department adviser and chairman.

#### EES 394. ADVANCED FIELD STUDY

One to three credits On-site study of an earth or environmental problem or situation incorporating field documentation and investigation techniques. May be repeated for credit when no duplication of experience results. One hour lecture, plus field trip. Fee: variable. Prerequisite: EES 194 or equivalent experience.

EES 395-396. INDEPENDENT RESEARCH I & II One to three credits each Independent study or research of a specific earth or environmental science topic at an advanced level under the direction of a departmental faculty member. For three credits, a defensible research paper is required.

Prerequisite: Upper-class standing and approval of academic adviser, research adviser, and department chairman.

#### EES 397. SENIOR SEMINAR One to three credits

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Presentations and discussions of selected topics and projects. Prerequisite: Senior standing.

#### **EES 198/298/398. TOPICS IN EES**

#### Variable credit

Departmental courses on topics of special interest, not extensively treated in regularly scheduled offerings, will be presented under this course number on an occasional basis. May be repeated for credit.

Prerequisite: Varies with topic studied.

#### EES 498. ADVANCED TOPICS

#### One to three credits

Departmental courses on advanced topics of special interest, not extensively treated in regularly scheduled offerings, will be presented under this course number on an occasional basis. Available for either undergraduate or graduate credit. May be repeated for credit. Prerequisite: Senior or graduate standing.

![](_page_63_Picture_50.jpeg)

The School of Business and Economics

## **ECONOMICS**

## Professor Emeritus Werner; Professors Farrar, Taylor; Associate Professors DeYoung, Williams; Assistant Professor Cordora.

#### Total minimum number of credits required for a B.A. degree -122. Total minimum number of credits required for a minor -24.

Students who contemplate a major in Economics should discuss career opportunities and preparation for life-long professional goals with their advisors.

Economics 101-102 are required of all majors and give the students opportunities to experience the wide gamut of the field and to visualize where economists put their expertise to productive use. Beyond the Principles courses, majors are encouraged to explore, with their advisors, those sequences which will best prepare them for their objectives. (All majors must take Money and Banking, Economic Statistics, Intermediate Macroeconomics and Intermediate Microeconomics.)

Professional economists are seldom employed with a baccalaureate degree and must anticipate further study at the graduate level. Graduates of the Wilkes program have achieved success in such prestigious universities as the University of Virginia, Cornell, the University of Maryland and the State University of New York.

Economists find that opportunities to put their knowledge to work extend from the private sector of the economy to the public sector, as well as to the not-for-profit sector. Firms that employ economists are to be found not only in banking, insurance, and other financial services, but also in international marketing, manufacturing, and kindred areas. At top levels of managerial professional responsibility, comprehension of economic issues is an absolute necessity.

Selection of Economics as a field of concentration is a rational choice for others than just those who elect to be economists. It is, for example, excellent preparation for students planning to continue their educations at law schools, especially for those who might choose corporation law as a specialty. Attorneys practicing in the public sector, especially in the Federal Trade Commission, the Anti-Trust Division of the Department of Justice, or the Securities and Exchange Commission, find substantial economic background ideal for their specialization.

Because Economics and its literature are so quantitative, substantial course work in mathematics is both desirable and necessary. This preparation should also stress Computer Science knowledge beyond basic requirements. The Economics Faculty at Wilkes suggests a foreign language as a humanities elective.

#### The School of Business and Economics

#### **Minor in Economics**

Students choosing to minor in Economics must choose one of the following four areas and must take Ec 101-102 as prerequisites.

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16

#### 1. Quantitative Economics

- Ec 231 Applied Economic Statistics I Univariate Analysis
- Ec 232 Applied Economic Statistics II Multivariate Analysis
- Ec 241 Microeconomics I
- Ec 242 Microeconomics II
- Ec 251 Macroeconomics I
- Ec 252 Macroeconomics II

#### 2. Economic Finance

- BA 225 Managerial Finance
- Ec 201 Money and Banking
- Ec 226 International Investment and Finance
- Ec 230 Business Cycles
- Ec 231 Applied Economic Statistics I Univariate Analysis
- Ec 232 Applied Economic Statistics II Multivariate Analysis

#### 3. International Economics

- Ec 224 Economic Development
- Ec 225 International Trade
- Ec 226 International Investment and Finance
- Ec 227 Economic Geography of North America, Europe, and the
  - Soviet Union
- Ec 228 Economic Geography of Asia, Africa, and Latin American
- Ec 229 Comparative Economic Systems

#### 4. Economic Policy

- BA 212 Government and Business
- Ec 201 Money and Banking
- Ec 222The American Labor MovementEc 229Comparative Economic Systems
- Ec 229Comparative EcoEc 230Business Cycles
- Ec 236 Public Finance

First

Eng 101 Composit

Mth 105 Calculus

Core Requirements

CS 115 Survey of

PE 100 Activity

## **Recommended Course Sequence for a Degree in Economics**

16

Semester		Second Semester	
ion I	3	Eng 102 Composition II	3
	4	Mth 106 Calculus II	4
	6	Core Requirements	9
Computers	3	PE 100 Activity	0
	0		

Undergraduates, even those who have taken no courses in Economics, are welcome to talk with departmental staff to explore the possibilities in this dynamic field.

Third Semester		Fourth Semest
Ec 101 Economics I	3	Ec 102 Economics II
Core Requirements	9	Core Requirements
Free Electives	3	Free Electives
PE 100 Activity	0	PE 100 Activity
	15	
Fifth Semester		Sixth Semeste
Ec 231 Statistics I	3	Ec 232 Statistics II
Ec 201 Money and Banking	3	Major Electives
Ec 241 Microeconomics I or	3	Free Electives
Ec 251 Macroeconomics I		
Free Electives	6	
	15	
Seventh Semester		Eighth Semest
Ec 241 Microeconomics I or	3	Major Electives
Ec 251 Macroeconomics I		Free Electives
Major Electives	3	
Free Electives	9	
	15	
	Third SemesterEc 101 Economics ICore RequirementsFree ElectivesPE 100 ActivityFifth SemesterEc 231 Statistics IEc 201 Money and BankingEc 241 Microeconomics I orEc 251 Macroeconomics IFree ElectivesSeventh SemesterEc 241 Microeconomics I orEc 251 Macroeconomics IFree ElectivesSeventh SemesterMajor ElectivesFree ElectivesFree Electives	Third SemesterEc 101 Economics I3Core Requirements9Free Electives3PE 100 Activity015Fifth SemesterEc 231 Statistics I3Ec 201 Money and Banking3Ec 201 Money and Banking3Ec 251 Macroeconomics I or3Ec 251 Macroeconomics I15Free Electives615Seventh SemesterEc 241 Microeconomics I or3Ec 251 Macroeconomics I or3Free Electives6153Free Electives3Free Electives3Free Electives3Free Electives3Free Electives3Free Electives3Free Electives3Free Electives91515

#### EC 101. PRINCIPLES OF ECONOMICS I

Presents basic economic problems and shows how these problems are solved in a free enterprise economy; the effects of the increasing importance of the economic role of government, the nature of national income and the modern theory of income determination; how money and banking, fiscal policy, and monetary policy fit in with income analysis and keep the aggregate system working. The course deals mainly with macroeconomic problems.

#### EC 102. PRINCIPLES OF ECONOMICS II

Based upon a broad microeconomic foundation concentrating on such units as the consumer, the firm, and the industry. A general view of the free market system; the economics of the firm and resource allocation under different market structures; production theory; pricing and employment of resources; economic growth and development.

#### EC 201. MONEY AND BANKING

**Three credits** 

The School of Business and Economics

9

15

3

12

15

Three credits

Three credits

Three credits

A study of money, credit, and banking operations. Monetary standards, development of the American monetary and banking system. Recent development in other financial institutions. Central banking and the Federal Reserve System; instruments of monetary control; international monetary relationships.

#### EC 222. THE AMERICAN LABOR MOVEMENT

A study of the evolving American labor movement and its ideology. This course deals with the development of American labor ideology and psychology in comparison with other labor movements. The relationship of the American labor movement to other political, social, and economic institutions is investigated.

### The School of Business and Economics

EC 223. COLLECTIVE BARGAINING

**Three credits** An introduction to labor problems and an analysis of major issues in the field of labor. This course deals with collective bargaining, employment, wages, hours, and union policies. Governmental participation in labor relations and collective bargaining are also investigated. Reference is made to social welfare devices such as social security, unemployment compensation, and workmen's compensation.

#### EC 224. ECONOMIC DEVELOPMENT

Three credits A study of the problems of development and growth in developed and less developed countries and how they can achieve growth and development. Topics stressed include population, financing development, planning and programming development, as well as theories of economic development.

#### EC 225. INTERNATIONAL TRADE

**Three credits** 

Page 113

Classical and Neo-classical theories of trade; qualifications of the pure theory; new theories of trade; the transfer of international payments and the determination of foreign exchange rates; the balance of international payments; tariffs and other trade barriers; United States commercial policy and the gatt; current issues.

EC 226. INTERNATIONAL INVESTMENT AND FINANCE

**Three credits** Theories of direct foreign investment; the nature and scope of multinational enterprise; international payments adjustments under alternative monetary systems; the collapse of the Bretten Woods System; the contemporary international monetary system; proposals for monetary reform; U.S. balance of payments problems and the status of the dollar.

#### EC 227. ECONOMIC GEOGRAPHY OF NORTH AMERICA,

EUROPE, AND THE SOVIET UNION **Three credits** A study and analysis of the characteristics, potentials, and problems of the more advanced nations of the Northern Hemisphere.

#### EC 228. ECONOMIC GEOGRAPHY OF ASIA, AFRICA,

AND LATIN AMERICA Three credits A study and analysis of the characteristics, potentials, and problems of the less developed nations of the world.

#### EC 229. COMPARATIVE ECONOMIC SYSTEMS **Three credits**

The institutions of a market economy are analyzed as a foundation for purposes of comparisons. Marxist theory of prices, wages, and the demise of capitalism is studied in order to establish the theoretical basis of Socialism and Communism. Particular stress is placed on the performance of the Soviet economy. Attention is also given to important operational aspects of the Chinese, British, and Swedish systems.

#### EC 230. BUSINESS CYCLES

#### **Three credits**

Historical analysis of major business cycles. Contemporary theories and a critical examination of public policy toward business cycles.

#### EC 231. APPLIED ECONOMIC STATISTICS I -UNIVARIATE ANALYSIS

Three credits

An introduction to the primary tools of research in economics and business. The major topics are estimation and test design using sample means and proportions with applications in eco-nomics, accounting, finance, marketing and management. The three hours of lecture per week are complemented by a mandatory two-hour laboratory emphasizing problem solving. Fee: \$20

Prerequisite: Ec 101, 102 and 6 hours of mathematics.

![](_page_65_Picture_34.jpeg)

#### The School of Business and Economics

**Three credits** 

**Three credits** 

**Three credits** 

Three credits

Three credits

Three credits

Three credits

**Three credits** 

One to three credits

#### The College of Arts and Sciences

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## EC 232. APPLIED ECONOMIC STATISTICS II — MULTIVARIATE ANALYSIS

An introduction to those aspects of research in economics and business in which information on two or more variables is utilized. The major topics are Chi Square Tests, One-Way and Two-Way Analysis of Variance, General Regression and Correlation, Time Series Analysis and Forecasting. A mandatory two-hour laboratory accompanies the three hours of lecture per week. Fee: \$20.

Prerequisite: Ec 231 or permission of instructor.

#### EC 234. ECONOMIC RESEARCH

The purpose of this course is to provide an introduction to the methods and logic of linear programming, input output analysis, queuing theory, index numbers, and other techniques of research in economics. Students are advised to take Ec 101 and 102 to obtain the theoretical background for this course.

#### EC 236. PUBLIC FINANCE

Fundamental principles of public finance; government expenditures; revenue; financial policies and administration; taxation; principles of shifting and incidence of taxation; public debs and the budget; fiscal problems of federal, state, and local government; the relation of goverment finance to the economy.

#### EC 241. MICROECONOMICS I

The study of the interaction between households and businesses in product and resource markets. Topics covered include consumer preferences, production theory, cost analysis, market structures and the determination of wages and prices.

#### EC 242. MICROECONOMICS II

The study of the market system as a whole, through welfare economics and general equilibrium analysis with emphasis on social preferences, market failure, and policy alternatives. Prerequisite: Ec 241 or permission of instructor.

#### EC 245. CONSUMER ECONOMICS

The place of the consumer in the economic system. Theories of consumption; problems of the individual consumer as affected by income and taxes; consumer habits and standard of living; trends in consumption, income disposition, marketing and pricing of consumer products. Relationships between government activities and the consumer are emphasized.

#### EC 251. MACROECONOMICS I

The study of behavior of the important economic aggregates; national income, consumption, investment, public spending, and taxes. Special emphasis is on the problems of inflation and unemployment and the post-Keynesian search for their causes and solutions.

#### EC 252. MACROECONOMICS II

An introduction to the Keynesian and Neoclassical growth theory and the various explanations of behavior of consumption, investment, unemployment, and inflation. The course is designed to present an alternative treatment of some topics covered in Macroeconomics I and to extend the student's knowledge into areas not covered.

#### EC 395-396. INDEPENDENT RESEARCH

Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required.

EC 397. SEMINAR (Maximum of three credits per student) One to three credits Presentations and discussions of selected topics.

EC 198/298/398.	TOPICS	Variable cr
Lectures on current	issues and developments in economics.	

#### **EDUCATION**

Professor J. Bellucci, chairman; Professor Emeritus Hammer; Professors Darte, Fahmy; Associate Professors Johnson, Placek; Assistant Professors B. Bellucci, Ginsburgh, G. Meyers, Polacheck.

The Education Department offers programs leading to teacher certification in art, biology, chemistry, communications, early childhood, earth and space science, elementary education, English, French, German, mathematics, music, physics, social studies, and Spanish. Copies of curricula for these programs are available in the appropriate department and in the Education Department office.

The teacher education program at Wilkes College requires students to major in a discipline other than education. Individuals who want teacher certification in elementary education must major in one of the following: Art, Biology, Chemistry, Computer Science, Earth and Environmental Science, Economics, English, Foreign Language, History, Interpersonal and Organizational Communication, Journalism, Mathematics, Philosophy, Physics, Political Science, Psychology, Theater Arts, Sociology, or Telecommunications.

Secondary school teaching certification candidates must major in one of the following: Art, Biology, Chemistry, Earth and Environmental Sciences, English, Foreign Language, Mathematics, Physics, Communication or Social Studies. They must also take Ed 101, 102, 201, 202, 203, 371, and 380. Social studies certification candidates who major in history must take twelve credits beyond 101-102 in one of the social sciences (anthropology, economics, political science, psychology, or sociology). Those who do not major in history must take twelve credits in history beyond 101-102. All candidates must include the following courses in their program: Ant 101, Ec 101 and 227 or 228, Hst 207 and 208, PS 102, and Soc 101.

Elementary school teaching certification candidates must take the following courses, several of which may be incorporated in the core and major: Mth 103, 104, 232, 243; Psy 221; two science sequences; and Ed 101, 102, 201, 202, 301, 302, 321, 322, 323, 324, 371, and 380.

Early childhood teaching candidates complete the elementary school teaching program described above and take Ed 361 and 362.

Teaching candidates in art or music will find their programs described on page 69 (art) or page 168 (music).

Students interested in preparing for teacher certification must have a cumulative G.P.A. of 2.3, recommendation by the major department, recommendation of the Dean of Student Affairs, and recommendation by the Teacher Education Committee. Criteria for admission to student teaching are established by the Teacher Education Committee; and applications are submitted to the Committee for approval.

Interested students are encouraged to seek counseling in the Education Department early in their first semester at the College.

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#### The College of Arts and Sciences

#### The College of Arts and Sciences

**First Semester** 

Eng 101 Composition I

**Core Requirements** 

Major Electives

PE 100 Activity

Core Requirements

Major Electives

Free Electives

18

Psy 101 General Psychology

Page 117

3

3

6-8

3-4

15-18

0

1

3

3

0

3

6

6-9

15-18

One credit each

**Three credits** 

9-10

16-17

Second Semester

Psy 221 Developmental Psychology

Eng 102 Composition II

**Core Requirements** 

Major Electives

PE 100 Activity

#### **Recommended Course Sequence for Secondary Education Recommended Course Sequence for Elementary Education**

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Psy 101 General Psychology	3	Psy 221 Developmental Psychology	3
Core Requirements	6-8	Core Requirements	6-8
Major Electives	3-4	Major Electives	3-4
PE 100 Activity	0	PE 100 Activity	0
	15-18		15-18

Third Semester		Fourth Semester
Ed 101 Practicum	1	Ed 102 Practicum
Ed 201 Intro. to Education	3	Ed 202 Educational Psychology
Ed 301 Health, PE & Safety	2	Ed 302 Children's Literature
Mth 103 Math for Elementary	3	Mth 104 Math for Elementary
School Teachers		Education Teachers
Core Requirements	6	Core Requirements
Major Electives	3	Major Electives
PE 100 Activity	0	PE 100 Activity
and the second state of th		

3

3

3

3 3

3

18

12

3

18

**Fifth Semester** Ed 321 Teaching of Reading

Seventh Semester

Ed 323 Teaching of Math

Mth 232 Abstract Algebra for

Elementary School Teachers

and Science

Core Requirements

Sci 101 Sciences\*

Major Electives

Free Electives

Major Electives

## **Sixth Semester** Ed 322 Teaching of Language Arts and Social Studies Ed 324 The Arts in Elementary Education Mth 243 Geometry for Elementary

School Teachers Sci 102 Sciences\* **Core Requirements Major Electives** 

# **Eighth Semester**

Core Requirements 3 Ed 371 Individual in the Classroom Ed 380 Professional Semester

15 18

Third Semester		Fourth Semester
101 Practicum	1	Ed 102 Practicum
201 Intro. to Education	3	Ed 201 Educational Psychology
re Requirements	9-10	Core Requirements
jor Electives	3	Major Electives
100 Activity	0	PE 100 Activity
	16-17	

3

3

6-8

3-4

15-18

0

#### **Fifth Semester Sixth Semester** Core Requirements 3 Core Requirements 6-9 Major Electives Major Electives 6 Free Electives Free Electives 15-18 Seventh Semester **Eighth Semester**

#### 3 Ed 371 The Individual in 3 6-9 the Classroom 6 Ed 380 Professional Semester 15 15-18 18

#### ED 101-102-103. PRACTICUM IN EDUCATION

Provides an opportunity for students to gain experience as teachers' aides in school classrooms under supervision. Seminars on campus will provide opportunity to discuss and evaluate practicum experiences. Ed 101 must be taken in conjunction with Ed 201. Ed 102 must be taken in conjunction with Ed 203 or Ed 322.

#### ED 150. LIFE CAREER PLANNING

#### An exploration of the effect of societal norms, historical forces, economic conditions, and psychological factors upon individual career choices.

### ED 201. INTRODUCTION TO EDUCATION

**Three credits** 

A study of the historical development of American education, the role of the school in Ameri-can life, educational philosophies, educational organization and administration, school finance, school curricula, school personnel, and current issues in education.

\*Note that students seeking certification in this program must complete an additional sequence in the sciences, we and above their Core Requirements.

Prerequisite: Sophomore standing.

#### The College of Arts and Sciences

Three credits

Three credits

Three credits

**Two credits** 

**Two credits** 

Three credits

Three credits

Three credits

Two credits

**Three credits** 

#### The College of Arts and Sciences

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ED 352. GUIDANCE **Three credits** An introduction to general principles and the techniques employed in guidance programs in public schools. Prerequisite: Ed 202.

ED 361. EARLY CHILDHOOD EDUCATION **Three credits** This course enables the student to understand the purpose for and operation of nursery schools, child care centers, and other pre-school institutions.

ED 362. INSTRUCTION IN EARLY CHILDHOOD EDUCATION **Three credits** This course prepares the student to work in a nursery school, child care center, or other preschool institution.

#### ED 370. SPECIAL PROJECTS

**Three credits** 

ED 371. THE INDIVIDUAL IN THE CLASSROOM Three credits This course examines instructional strategies that recognize individual differences, including physical and other handicaps, multi-ethnicity, legal obligations and other classroom responsibilities.

Prerequisite: Enrollment in Ed 380.

#### ED 380. PROFESSIONAL SEMESTER IN EDUCATION **Fifteen credits** This course examines professional problems common to all teachers and provides practical experience in classroom teaching. Fee: \$50.

Prerequisite: Approval by the Teacher Education Committee.

#### Credit will be transcripted as follows:

ED 381.	PROFESSIONAL PRACTICUM	Four credits
ED 382.	INTERN TEACHING	Eleven credits

ED 395-396. INDEPENDENT RESEARCH One to three credits Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. Prerequisite: Approval of department chairman is required.

(Maximum of three credits per student) One to three credits ED 397. SEMINAR Presentations and discussions of selected topics. Prerequisite: Approval of department chairman is required.

Variable credit ED 198/298/398. TOPICS IN EDUCATION A study of topics of special interest not extensively treated in regularly offered courses.

ED 324. THE ARTS IN EARLY CHILDHOOD AND

#### ED 351. EDUCATIONAL MEASUREMENTS

A study of the characteristics, construction, and use of various educational measuring instruments commonly available in schools. Prerequisite: Ed 202.

ED 202. EDUCATIONAL PSYCHOLOGY A study of the principles of learning and the application of psychological principles in the prac-

tice of education. Prerequisite: Psy 101.

#### ED 203. SPECIAL METHODS OF TEACHING

A study of instructional methodology in the various disciplines. Attention is given to characteristic problems faced by teachers in these several fields. Reading and other specialized techniques are examined.

Section A — Art (Grades K-12) Section C — Communication/English (Grades 7-12) Section F — Foreign Languages (Grades K-12) Section G — Mathematics (Grades 7-12)

- Section H Music (Grades K-12)
- Section I Sciences (Grades 7-12) Section J Social Studies (Grades 7-12)

## ED 204. BASIC EDUCATION CURRICULA

**Three credits** An examination of curricula in the various disciplines. Programs of study developed by various organizations are examined.

Section A - Art (Grades K-12) Section C — Communication/English (Grades 7-12) Section F — Foreign Languages (Grades K-12) Section G — Mathematics (Grades 7-12) Section H — Music (Grades K-12) Section I — Sciences (Grades 7-12) Section J — Social Studies (Grades 7-12)

#### ED 290. ANALYSIS OF RESEARCH

ED 302. CHILDREN'S LITERATURE

ED 321. THE TEACHING OF READING

AND ELEMENTARY EDUCATION

**ELEMENTARY EDUCATION** 

This course provides instruction designed to help students learn how to locate and evaluate factual information; research procedures are examined; research reports are analyzed; students identify and criticize reports in their field of study.

ED 301. HEALTH, PHYSICAL EDUCATION AND SAFETY IN EARLY

CHILDHOOD AND ELEMENTARY EDUCATION

ED 322. LANGUAGE ARTS AND SOCIAL STUDIES IN EARLY

ED 323. MATHEMATICS AND SCIENCE IN EARLY CHILDHOOD

CHILDHOOD AND ELEMENTARY EDUCATION

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The School of Engineering and Physical Sciences

#### The School of Engineering and Physical Sciences

ENGINEERING

Professor Nejib, Chairman; Professor Emeritus Thomas; Professors Faut, Hostler, Kaska, Orehotsky; Associate Professors Armand, Arora, Case, Koch, Maxwell, Parashar, Pindzola, Assistant Professors Choudhry, Farooq, Ghorieshi, Janaswamy, Janecek, Kucirka, Mohseni, Razavi, Srinivasan, Yeroushalmi; Adjunct Professors Fredrick, Osadchy; Lecturer Petyak, Technical Support Staff: Chesny, Lennox, Sarnecki, Sickler.

Total minimum number of credits required for a B.S. degree in Electrical Engineering - 134.

Total minimum number of credits required for a B.S. degree in Environmental Engineering - 133.

Total minimum number of credits required for a B.S. degree in Materials Engineering - 133.

Total minimum number of credits required for a B.S. degree in Engineering Management - 133.

The Department of Engineering offers three types of degree programs, which provide strong engineering and scientific experience with advanced techniques heavily integrated into the curriculum. Students intending to major in engineering are encouraged to be well prepared in the sciences and mathematics. The first year of course work is common to all engineering programs.

The four-year programs in Electrical Engineering, Engineering Management, Environmental Engineering, and Materials Engineering leading to the Bachelor of Science degree offer various specializations. Students can choose to concentrate, within these programs, in bioengineering, computer engineering, electronic materials, microelectronics, microwave and antenna systems, or telecommunications. Specialization is achieved through the appropriate selection of the technical electives.

Candidates for the Engineering Management degree must declare a preference area in electrical, environmental, or materials. Graduates of this program, with high academic averages, can attain an M.B.A. degree in one year at Wilkes.

The five-year programs in engineering offer the student the opportunity to obtain broader education in the arts and sciences, while completing the requirements for a degree in engineering. Upon successful completion of this program, the student is awarded a B.S. degree in a particular branch of engineering. A student may elect to enter this program at any time during his or her tenure of study. The timing of this entry is critical due to the sequential nature of the courses in engineering.

The two-year programs in Aeronautical, Chemical, Civil, Industrial, and Mechanical engineering are also offered. These programs are specifically designed to provide a successful transfer of students to the junior year at other accredited engineering schools.

The student professional chapters of the Institute of Electrical and Electronic Engineers (I.E.E.E.), the American Society for Metals (A.S.M.), the Society of Women Engineers (S.W.E.), American Ceramic Society (ACS), Metallurgical Society of A.I.M.E., and the Pennsylvania Society of Professional Engineers (P.S.P.E.), in conjunction with the Department, periodically offer seminars on subjects of a timely nature. Attendance at these seminars is mandatory for the completion of degree requirements.

In 1979 the Engineering Department started the Technology Transfer Program (TTP) to enable the community to draw upon the department's technical expertise and advanced facilities. This effort is directed to assist in the development and expansion of industries, and the establishment of high technology facilities in Northeastern Pennsylvania.

### **Honors Programs in Engineering**

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Upon the recommendation and approval of the engineering faculty, honor students in Engineering will be recognized upon completion of the following requirements: achieving an overall grade point average of 3.25 or better; receiving grades of 3.00 or better in all engineering courses of his or her discipline; pursuing independent research or special projects in engineering and presenting the results at meetings, conferences, or through publication of a paper. The distinction "Honors in Engineering" will be recorded on the student's transcript upon graduation.

### **Two-Year Academic Programs**

### **Aerospace Engineering Civil Engineering Mechanical Engineering**

First Semester		Second Semester	
m 115 Elements and Compounds	4	Chm 118 Chemistry for Engineers	3
g 101 Composition I	3	Eng 102 Composition II	3
r 111 Introduction to Engineering	4	Egr 244 FORTRAN	3
h 111 Calculus I	4	Mth 112 Calculus II	4
100 Activity	0	Phy 201 General Physics I	4
		PE 100 Activity	0
	15		17
Third Semester		Fourth Semester	
211 Circuit Theory I	3	For 232 Strength of Materials	3
231 Statics & Dynamics	3	or 224 Heat and Mass Transfer	
283 Measurement Lab. I	1	Egr 284 Measurement Lab. II	1
h 211 Intro. to Differential Equations	4	MaE 210 Materials Engineering	3
202 General Physics II	4	Mth 212 Multivariable Calculus	4
eral Studies	3	Phy 203 General Physics III	3
		Liberal Studies	3
	18		17

### Page 121

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### The School of Engineering and Physical Sciences

Second Semester

The School of Engineering and Physical Sciences

Page 123

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### **Four-Year Academic Programs**

## **Recommended Course Sequence for a Degree in Electrical Engineering**

Eng 101 Composition I	3	Eng 102 Composition II	3	First Semester		Second Semester
Egr 111 Introduction to Engineering	4	Ear 244 FORTRAN	3	Chm 115 Elements and Compounds	4	Chm 118 Chamistry for Engineers
Mth 111 Calculus I	4	Mth 112 Calculus II	4	Chill 115 Elements and Compounds	4	Chill Tto Chemistry for Engineers
PE 100 Activity	0	Phy 201 General Physics I	7	Eng TUT Composition I	3	
		PE 100 Activity	4	Egr 111 Introduction to Engineering	4	Egr 244 FORTRAN
	the states	TE 100 Activity	_	Mth 111 Galculus I	4	Mth 112 Calculus II
	15		17	PE 100 Activity	0	Phy 201 General Physics I
			19192		15	PE 100 Activity
			Isribil		15	
Third Semester		Fourth Semester	1000			
Chm 231 Organic Chemistry I	4	Chm Elective (200 or above)	24	Third Semester		Fourth Semester
FE 211 Circuit Theory I	3	Ear 284 Measurement Lab II	3-4	EE 211 Circuit Theory I	3	EE 212 Circuit Theory II
For 283 Measurement Lab L	1	MaE 210 Materials Engineering	2	Egr 231 Statics & Dynamics	3	Egr 232 Strength of Materials
Mth 211 Intro to Differential Equations	1	Mth 212 Multiveriable Calculus	3	Egr 283 Measurement Lab. I	1	or 224 Heat Transfer
Phy 202 General Physics II	4	Bby 202 Caparal Division III	4	Mth 211 Intro. to Differential Equations	4	Egr 284 Measurement Lab. II
Liberal Studies	4	Fily 203 General Physics III	3	Phy 202 General Physics II	4	MaE 210 Materials Engineering
Liberal Studies		Liberal Studies	3	Liberal Studies	3	Mth 212 Multivariable Calculus
	19		17-18			Phy 203 General Physics III
			1000		18	
			(ab)			
Indu	staid F	and all the second s	2002	Fifth Semester		Sixth Semester
Indu	strial E	ngineering	1203	EE 251 Electronics I	3	EE 252 Electronics II
			10.0203	EE 253 Electronic Lab. I	1	EE 254 Electronic Lab. II
First Semester		Second Semester	10000	EE 331 Electromagnetics I	3	EE 332 Electromagnetics II
Chm 115 Elements and Compounds	1	Chm 110 Chamistry for Engineer		EE 333 Electromagnetics Lab. I	1	EE 334 Electromagnetics Lab. II
Eng 101 Composition L	4	Chim 118 Chemistry for Engineers	3	EE Elective	3	EE 272 Solid State Devices
Ear 111 Introduction to Engineering	3		3	Liberal Studies	6	EE Elective
Mth 111 Calculus I	4	Egr 244 FURTRAN	3			Liberal Studies
PE 100 Activity	4	With 112 Galculus II	4		17	
FE TOO ACTIVITY	0	Phy 201 General Physics I	4		17	
Frank and south in the big state of the second south in the		PE 100 Activity	0			
	15		17	Seventh Semester		Eighth Semester
				EE 321 Electric Machines	3	EE 382 Adv. Comm. & Antenna Lab.
			1000	EE 323 Electric Machines Lab	1	EE 392 Senior Projects II
Colstain housing echoestrica (800				EE 335 Microwaves & Antenna	3	EE Electives
Third Semester		Fourth Semester	100	Systems		Liberal Studies
EE 211 Circuit Theory I	3	BA 252 Operations & Systems Man.	3	EE 381 Advanced Microelectronics Lab	. 4	
Egr 231 Statics & Dynamics	3	or Liberal Studies	1000	EE 391 Senior Projects I	1	
Egr 283 Measurement Lab. I	1	Egr 232 or 224	3	EE Elective	3	
Mth 211 Intro. to Differential Equations	4	Egr 284 Measurement Lab. II	1	Liberal Studies	3	
Phy 202 General Physics II	4	MaE 210 Materials Engineering	3		18	
Liberal Studies	3	Mth 212 Multivariable Calculus	4		10	
		Liberal Studies	3	EE electives may be chosen from any mathemy	atice ecien	ce, or engineering course numbered 200 or above
<ul> <li>24.2. Multiple and a statistical sector in the sector in th</li></ul>	TO OT		-	least six of the credits being in two of the followi	na five ena	ineering areas: Microcomputers: Control: Instrume

EE electives may be chosen from any mathematics, science, or engineering course numbered 200 or above, with a least six of the credits being in two of the following five engineering areas: Microcomputers; Control; Instrumentation
Power, Communication. Students desiring computer, bioengineering, or other concentrations should consult their ad

Liberal Studies constitute a total of nine credits in the humanities and nine in the social sciences.

	15	PE TOU ACTIVITY
Third Semester		Fourt
Chm 231 Organic Chemistry I	4	Chm Elective (200
EE 211 Circuit Theory I	3	Egr 284 Measure
Egr 283 Measurement Lab. I	1	MaE 210 Materia
Mth 211 Intro. to Differential Equations	4	Mth 212 Multivar
Phy 202 General Physics II	4	Phy 203 General
Liberal Studies	3	Liberal Studies

18

Chm 115 Elements and Compounds 4 Chm 118 Chemistry for Engineers

Chemical Engineering

First Semester

## Industrial Engineering

#### First Semester Chm 115 Elements and Compounds Eng 101 Composition I Egr 111 Introduction to Engineering 4

### Third Semester

EE 211 Circuit Theory I	3
Egr 231 Statics & Dynamics	3
Egr 283 Measurement Lab. I	1
Mth 211 Intro. to Differential Equation	s 4
Phy 202 General Physics II	4
Liberal Studies	3

![](_page_70_Picture_15.jpeg)

The School of Engineering and Physical Sciences

The School of Engineering and Physical Sciences

## **Recommended Course Sequence for a B.S. Degree in Environmental Engineering**

proper biology sequencing or reorganizing the courses. Liberal Studies constitute a total of nine credits in the humanities and nine in the social sciences, including PS course numbered 200 or above.

First Semester	Second Semester		First Semester		Second Semester	
Chm 115 Elements and Compounds 4	Chm 118 Chemistry for Engineers	5 3	Chm 115 Elements and Compounds	4	Chm 118 Chemistry for Engineers	3
Eng 101 Composition I 3	Eng 102 Composition II	3	Eng 101 Composition I	3	Eng 102 Composition II	3
Ear 111 Introduction to Engineering 4	Ear 244 FORTRAN	3	Ear 111 Introduction to Engineering	4	Ear 244 FORTRAN	3
Mth 111 Calculus I 4	Mth 112 Calculus II	4	Mth 111 Calculus I	4	Mth 112 Calculus II	4
PE 100 Activity 0	Phy 201 General Physics I	4	PE 100 Activity	0	Phy 201 General Physics I	4
Day 2011 (Day and Standard )	PE 100 Activity	0	and the last of a second plantak. CO		PE 100 Activity	0
15				15	pare pel pecel.	17
15		1/		15		17
Third Semester	Fourth Semester		711.10		E- th O-	
Mth 211 Differential Equations 4	Mth 212 Multivariable Calculus	4	Third Semester		Fourth Semester	
Phy 202 General Physics II 4	Phy 203 General Physics III	3	EE 211 Circuit Theory I	3	Egr 224 Heat and Mass Transfer	3
Egr 283 Measurement Lab. I 1	Egr 284 Measurement Lab. II	1000	Egr 231 Statics & Dynamics	3	Egr 232 Strength of Materials	3
EES 211 Physical Geology 4	EES 240 Principles of Environmer	ntal 4	Egr 283 Measurement Lab. I	1	Egr 284 Measurement Lab. II	1
EE 211 Circuit Theory I 3	Science	13.05	Mth 211 Intro. to Differential Equations	4	Mth 212 Multivariable Calculus	4
	MaE 210 Materials Engineering	3	Phy 202 General Physics II	4	Phy 203 General Physics III	3
	Egr 224 Heat & Mass Transfer	3	Liberal Studies**	3	MaE 210 Materials Engineering	3
				18		17
		10				
Fifth Semester	Sixth Semester		Fitth Compositor		Civth Competer	
Bio 121 Modern Biology I 4	Bio 122 Modern Biology II	4	Finn Semester		Sixin Semester	
or Chm 231 Organic Chemistry I	or Chm 232 Organic Chemistry		Chm 231 Organic Chemistry I	4	Chm Elective (200 or above)	3-4
FES 331 Advanced FOM I 4-3	FES 332 Advanced FOM II	4.3	MaE 311 X-Ray Diffraction	3-4	MaE 332 Engineering Polymers	3
or 320 Hydrology	or 305 Hazardous Solid Waste	TU	or 321 Thermo & Phase Equilibria I	103	or 322 Thermo & Phase Equilibria II	
For 233 Fluid Mechanics 3	For 232 Strength of Materials	2	MaE 241 Physical Metallurgy	3	MaE 342 Mechanical Metallurgy	3
Egr 231 Statics & Dynamics 3	MaE 234 Electrochemistry	3	or 231 Ceramics	9. A.8. Inc.	or 234 Electrochemistry	15.85
Liberal Studies	or 332 Engineering Polymers		EE 271 Physical Electronics	3	MaE Elective*	3
	Liberal Studies	2	Liberal Studies**	3	Liberal Studies**	3
RE 100 Activity	Liberal Studies		16	6-17		15-16
17-16		17-16				
		100				
Seventh Semester	Eighth Semester	11122	Seventh Semester		Eighth Semester	
Egr 397 Senior Seminar 1	Egr 397 Senior Seminar	1	MaE 311 X-Ray Diffraction	4-3	MaE 332 Engineering Polymers	3
EES 331 Advanced EQM I 4-3	EES 332 Advanced EQM II	3-4	or 321 Thermo & Phase Equilibria I		or 322 Thermo & Phase Equilibria II	
or 320 Hydrology	or 305 Hazardous Solid Waste	10000	MaE 241 Physical Metallurgy	3	MaE 342 Mechanical Metallurgy	3
EES 251 Synoptic Meteorology 4	MaE 234 Electrochemistry	3	or 231 Ceramics		or 234 Electrochemistry	
Technical Elective 3	or 332 Engineering Polymers	1668	MaE 381 Adv. Materials Lab. I	3	MaE 392 Senior Projects II	2
Liberal Studies 6	Technical Elective	3	MaE 391 Senior Projects I	1	MaE Elective*	3
	Liberal Studies	6	MaE Elective*	3	Liberal Studies**	6
17.18		16-17	Liberal Studies**	3		
17-10		10-11	17	-16		17
Technical Electives are to be chosen from engineer	ring courses numbered 200 or above. Consult your	advisor for	17	10		

\*MaE electives may be chosen from any mathematics, science, or engineering course numbered 200 or above, with at least three of the credits being in engineering. Students desiring electronic materials concentration should select the sequence EE 251, 253, 272, 381, and Liberal Studies electives. \*\*Liberal Studies constitute a total of nine credits in the humanities and nine in the social sciences.

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## **Recommended Course Sequence for a B.S. Degree in Materials Engineering**

![](_page_71_Picture_9.jpeg)
**First Semester** 

Mth 211 Differential Equations

Ec 101 Economics I

Technical Electives\*

BA 222 Marketing

Technical Electives\*

Liberal Studies\*\*\*

Egr 391 Senior Projects I

Liberal Studies\*\*\*

Phy 202 General Physics II

Fifth Semester

Seventh Semester

Engineering Management Elective\*\*

Egr 371 Analysis & Prog. Methods

BA 225 Managerial Finance

BA 251 Principles of Management

# The School of Engineering and Physical Sciences

# **Recommended Course Sequence for a B.S. Degree in Engineering Management**

**Second Semester** 

3

3

3 4

4

0

17

Chm 115 Elements and Compounds	4	Chm 118 Chemistry for Engineers
Eng 101 Composition I	3	Eng 102 Composition II
Egr 111 Introduction to Engineering	4	Egr 244 FORTRAN
Mth 111 Calculus I	4	Mth 112 Calculus II
PE 100 Activity	0	Phy 201 General Physics I
A structure in a stru		PE 100 Activity
	15	
Third Semester		Fourth Semester
EE 211 Circuit Theory I	3	MaE 210 Materials Engineering
Egr 231 Statics & Dynamics	3	Egr 232 Strength of Materials
Egr 283 Measurement Lab. I	1	Egr 284 Measurement Lab. II

4

3

18

3 3

3

6

3

18

3

6

3

1

3

16

MaE 210 Materials Engineering	
Egr 232 Strength of Materials	
Egr 284 Measurement Lab. II	
Mth 150 Statistics	
Acc 101 Accounting I	
Ec 102 Economics II	

# **Sixth Semester**

Egr 376 Engineering & Management	~
Models	
BA 231 Business Law — Contracts	
or 232 Business Law — Corp.	
Technical Electives*	6
Liberal Studies***	6

# **Eighth Semester** EES 240 Principles of Environmental 4 Science Technical Electives\* Engineering Management Elective\*\* Egr 392 Senior Projects II

\*Technical Electives must be courses in approved engineering and science preference program

# The School of Engineering and Physical Sciences

# General Engineering

# EGR 111. INTRODUCTION TO ENGINEERING

A general introduction to the techniques of engineering analysis. Emphasis on: methods of solving engineering problems; data presentation and interpretation including graphs, schematics, and P.C. layouts; fundamentals of drafting and CAD systems; vectors and vectors algebra; matrices and matrix operation. Introduction to computer logic, structure, and programming. Problem solving using computers. Four hours lecture-recitation per week. Fee: \$15.

# EGR 224. HEAT AND MASS TRANSFER

**Three credits** Fundamental principles of heat transmission by conduction, convection and radiation; application of the laws of thermodynamics; mass transfer; application of these principles to the solution of engineering problems. Three hours lecture per week. Prerequisite: Phy 201 and Mth 211.

#### EGR 231. STATICS AND DYNAMICS

Equilibrium of force systems; computation of reactions and internal forces; determination of centroids and moments of inertia. Kinematics and dynamics of particles and rigid bodies; Newton's laws, kinetics and potential energy, linear and angular momentum, impulse, and inertia properties. Three hours lecture per week. (same as Phy 211) Prerequisite: Phy 201, Mth 112.

# EGR 232. STRENGTH OF MATERIALS

Analysis of statically determinate and indeterminate structural systems; computation of reactions, shears, moments, and deflections of beams, trusses, and frames. Bending and torsion of slender bars; buckling and plastic behavior. Three hours lecture per week. Prerequisite: Egr 231.

#### EGR 233. FLUID MECHANICS

Three credits Thermodynamics and dynamic principles applied to fluid behavior, ideal, viscous, and compressible fluids under internal and external flow conditions. Prerequisite: Egr 231.

# EGR 241. BASIC PROGRAMMING

CS 122)

# **One credit** Introduction to computer programming using the BASIC language, the principal high level language of microcomputers and minicomputers. One hour lecture per week. Fee: \$30. (see

EGR 244. FORTRAN Three credits Introduction to computer programming using the FORTRAN language. The computer is used to solve problems geared to the individual interest of the students. Three hours lecture per week. Fee: \$45. (see CS 123)

# EGR 247. ADVANCED PROGRAMMING - PASCAL

Four credits

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Four credits

Three credits

**Three credits** 

A study of advanced programming techniques and the Pascal programming language. Topics include basic and user-defined data types, their use and their machine implementation, structured programming, recursion, efficient data organization. Fee: \$45. (same as CS 225) Prerequisite: CS 123/Egr 244. Offered every spring and fall.

# EGR 250. BIOMEDICAL ENGINEERING

# **Three credits**

Engineering principles of biomedical instrumentation relating to circulation, respiration, and motor-neural systems are developed. The relationship between human anatomy, physiological system, and transducers is treated as a man-machine interface phenomenon. Instruments em-

- ingl internship
- \*\*\* Liberal Studies must include at least nine credits in the humanities.

phasized include X-ray, ultrasonics, and coronary care devices. Prerequisite: Junior or senior standing in engineering or science. and large enough to meet them

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#### The School of Engineering and Physical Sciences

EGR 283-284. ENGINEERING MEASUREMENT LAB I, II One credit each A laboratory for the development of measurement techniques and data gathering. The understanding and the use of instrumentation for the measurement of various electric quantities, displacement, temperature, pressure, and other engineering-related quantities. Two-hour laboratory per week. Fee: \$30 per semester.

#### EGR 342. MACHINE LANGUAGE

# Three credits

One to six credits

Three credits

Three credits

Basic principles of machine language programming. Computer organization and representation of numbers, strings, arrays, list structures at the machine level. Examples utilize all levels of computer architecture. Three hours lecture. Fee: \$45. (see CS 322) Prerequisite: Egr 245/CS 223.

#### EGR 360. INDUSTRIAL TRAINING

Industrial and/or research experience gained through assignments or jobs with the community, government, business, or industry. Prerequisite: Approval of the Engineering department.

#### EGR 371. QUANTITATIVE ANALYSIS AND **PROGRAMMING METHODS**

Discussion of various quantitative analysis and optimization methodologies. Analytical/numerical approaches are used in solving linear and nonlinear optimization problems. Emphasizes the development of ability in analyzing problems, solving problems by using software, and post solution analysis. (same as CS 262) Prerequisite: Junior standing or consent of instructor.

#### EGR 372. ENERGY MANAGEMENT ENGINEERING

Appraisal of energy conservation management, economic efficiency of energy sources, productivity analysis techniques. Principles of energy balance analysis and the availability of energy sources

Prerequisite: Junior or senior study in engineering or science.

# EGR 373. OCCUPATIONAL HEALTH

# Three credits

Appraisal of environmental health hazards, sampling techniques, instrumentation and analytic methods. Principles of substitutions, enclosure and isolation for the control of hazardous operations in industry. Three hours lecture/demonstration.

Prerequisite: Junior or senior standing in engineering or science.

#### EGR 374. MANAGEMENT OF INDUSTRIAL ENGINEERING Three credits Systems analysis that will include all types of problems frequently encountered by industrial engineers, their impact on the management of an industrial concern, and an exposure to the industrial engineering techniques available to solve the problems.

Prerequisite: Senior engineering standing.

EGR 375. PROJECT & SYSTEMS MANAGEMENT Three credits Description of systems management, systems engineering management and the design proess. The role of decision theory, modeling, and methodology in systems management analysis.

Project environment and control. Program management, planning, and control. Prerequisite: Senior engineering standing.

EGR 376. ENGINEERING AND MANAGEMENT MODELS Three credits Discussion of the techniques and arts in modeling practical problems encountered by engineers and managers.

Prerequisite: Egr 371 or consent of instructor.

# The School of Engineering and Physical Sciences

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**One credit** 

# EGR 391. SENIOR PROJECTS I

Design and development of selected projects in the various fields of engineering under the direction of a staff member. Technical as well as economic factors will be considered in the design. A professional paper and detailed progress report are required. Prerequisite: Senior standing in engineering.

# EGR 392. SENIOR PROJECTS II

**Two credits** Design and development of selected projects in the field of engineering under the direction of a staff member. Technical as well as economic factors will be considered in the design. This is a continuation of Egr 391. A professional paper to be presented and discussed in an open forum is required.

Prerequisite: Egr 391.

EGR 397. SEMINAR

# EGR 395-396. INDEPENDENT RESEARCH

One to three credits Independent study and research for advanced students in the field of their major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. Prerequisite: Approval of department chairman.

One to three credits

Presentations and discussions of selected topics and projects. Prerequisite: Senior engineering standing.

# EGR 198/298/398. TOPICS IN ENGINEERING

Variable credit Selected topics in the field of engineering and related areas. These may include: mechanical engineering; civil engineering; engineering management; geotechnology; radiation; etc. Prerequisite: Senior engineering standing.

# **Electrical Engineering**

#### **EE 211. CIRCUIT THEORY I**

**Three credits** 

Definitions. Formulations of circuit equations and theorems. Various techniques for circuit analysis using resistive networks. Characterizations of inductance and capacitance. Sinusoidal steady-state analysis using phasor concept. Average power and r.m.s. values. Reactive power, complex power, and power factor. Three phase circuits and their analysis. Measurement of power.

Prerequisite: Mth 112.

# EE 212. CIRCUIT THEORY II

**Three credits** Laplace transformation. Transient and steady-state analysis using Laplace transformation. Complex frequency and transform impedances. Definitions of one-port and two-port networks. Network functions, poles and zeros. Frequency responses of second order functions. Inter-relationship between time domain and frequency domain quantities. Mutual inductance and ideal transformer. Characterizations of two-port networks. Fourier series and integral. Computer methods in analysis. Prerequisite: EE 211.

#### **EE 214. LINEAR SYSTEMS**

**Three credits** Types of Signals and Systems: Discrete, Continous Deterministic and Stochastic; Application of Laplace and Z Transforms to System Analysis and Design; Fourier and Discrete Transforms and their application to Communications and Digital Signal Processing with strong treatment of sampling, modulation, and aliasing; Modeling of Electrical, Mechanical, Optical Systems and their analysis using State Space Techniques. Prerequisite: EE 212.



# The School of Engineering and Physical Sciences

Three credits

**One credit** 

One credit

**Three credits** 

Three credits

Three credits

Three credits

#### EE 251. ELECTRONICS I Three credits The development of operating principles and teroinal characteristics of electronic devices, particularly semiconductor devices, rectifiers, amplifiers, design considerations for small and large signals.

Prerequisite: EE 212.

# EE 252. ELECTRONICS II

Application of operational amplifiers. Frequency response of amplifiers and principle of feedback. Oscillators, modulation and detection. Design considerations, Logic gates, Flip-Flop Registers and Counters. Principle of digital filters, D/A and A/D converters. Prerequisite: EE 251.

# EE 253. ELECTRONIC LABORATORY I

Familiarization with electronic equipment through experiments. Studying the characteristic of diode and transistor through a series of experiments. Design of power supply and different types of amplifiers. One three-hour laboratory a week. Fee: \$45. Prerequisite: To be taken along with or after EE 251.

#### EE 254. ELECTRONIC LABORATORY II

Investigating the effect of negative feedback on characteristics of amplifiers. Experiment with operational amplifier and design of electronic circuits using Op-Amps as a building block. Amplifier design using FET. Switching techniques, multivibrators, flip-flop and other major logic circuits. Design of different type oscillators. Modulation and detection. Each lab group is responsible for the design and demonstration of an engineering project. One three-hour laboratory a week. Fee: \$45.

Prerequisite: To be taken along with or after EE 252.

# **EE 271. PHYSICAL ELECTRONICS**

Structure of the solid state, wave mechanics, statistics, band theory of solids, semiconductors and semiconductor electronics. Emission (thermionic, field, and photo-), photoconductivity and luminescene. Diodes, transistors, and other devices. Dielectrics, non-linear optics, piezoelectrics, ferroelectrics, ferro, and ferrimagnetism. Three hours class a week.

# Prerequisite: MaE 210, Phy 203

# EE 272. SOLID STATE DEVICES

Transistor processes and types, properties of semiconductors, junction characteristics and theory. Junction transistor characteristics and theory. High-current effects and low frequency feedback effects. Low frequency and high frequency hybrid parameters. Three hours class a week

Prerequisite: MaE 210 and Phy 203.

#### EE 298. TOPICS IN ELECTRICAL ENGINEERING One to three credits Selected topics in the field of electrical engineering.

Prerequisite: Sophomore or junior standing or permission of instructor.

#### EE 314. CONTROL SYSTEMS

Model of linear systems and general feedback theory. Analysis of closed loop systems using the root locus and frequency response techniques. Stability analysis; the Nyquist stability criterion. Compensating techniques; series and feedback compensation. Sample data system. Introduction to analog computers.

Prerequisite: EE 214.

# EE 321. ELECTRIC MACHINES

Magnetic circuits; single and three phase transformers, auto transformers, DC Machines; principle and construction, DC Generators, DC Motors, AC Machines: Synchronous Generators, and motors, Parallel operation, 3 phase and 1 phase induction motors. Prerequisite: EE 331.

#### The School of Engineering and Physical Sciences

EE 323. ELECTRIC MACHINE LABORATORY 1 credit Analysis of single and three phase circuits and the concept of power measurement; no load and load tests on Transformers, DC Machines, Synchronous Machines, and Induction Motors. Three Phase Transformer Connections, Parallel operation of alternators. Fee \$40. Prerequisite: To be taken along with or after EE 320.

#### EE 331. ELECTROMAGNETICS I

Three credits Vector analysis. The concept of fields. Dielectric and magnetic media; fields in conductors; electric and magnetic circuit elements. Maxwell's equations and boundary condition problems in one, two, and three dimensional space. Plane electromagnetic waves and power flow. Three hours lecture a week. Prerequisite: Mth 211 and Phy 202.

**EE 332. ELECTROMAGNETICS II** Development of Maxwell's equations and boundary-value problems. Plane wave propagation and reflection from boundaries; the Poynting Theorem. Transmission lines and strip lines; impedance transformation and Smith Charts. Guided TEM, TE and TM waves. Radiation from dipole antenna. Three hours lecture a week Prerequisite: EE 331.

EE 333. ELECTROMAGNETICS LABORATORY I

# **One credit**

Laboratory experiments are performed which illustrate fundamental electromagnetic field concepts in distributed systems and in lumped element circuits. Experiments are partially planned by the students and reported both formally and informally. One three-hour laboratory a week. Fee. \$40.

Corequisite: EE 331.

# EE 334. ELECTROMAGNETICS LABORATORY II

A continuation of EE 333 with emphasis on transmission line concepts and the interaction of electromagnetic fields and matter. One three-hour laboratory a week. Fee: \$40. Prerequisite: EE 331.

# EE 335. MICROWAVES AND ANTENNA SYSTEMS

#### **Three credits**

**One credit** 

Wave propagation in waveguides, resonant cavities and microwave devices and circuits. Retarded potentials. Relation of radiation fields to source distributions; antenna gain concepts and techniques in antenna design. Characterization and analysis of various types of antennas. Radoms and reflectors. Principles of phased-arrays. Three hours lecture a week. Prerequisite: EE 332.

# EE 341. LOGIC AND SWITCHING CIRCUITS

# **Three credits**

Application of Boolean algebra to the design of Number system logic networks, solid-state switching circuits and devices. Minimization techniques to the synthesis of combinatorial switching circuits including AND-OR and NAND-NOR logic. Analysis and synthesis of sequential switching circuits clocked and asynchronous operation. Effect of microelectronic technology on logic design optimization. Fault masking by redundancy techniques. Three hours lecture a week. (same as CS 320) Prerequisite: EE 211.

# EE 342. MICROCOMPUTER OPERATION AND DESIGN

Three credits Microprocessor architecture, microcomputer design, and peripheral interfacing. Microprogramming, software systems, and representative applications. Associated laboratory experiments consider topics such as bus structure, programming, data conversion, interfacing, data acquisition, and computer control. Two hours lecture and one two-hour laboratory a week. Fee: \$45. (same as CS 329)

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**Three credits** 

Prerequisite: EE 341/CS 320.

The School of Engineering and Physical Sciences

Three credits

Three credits

Three credits

Three credits

Three credits

Three credits

# EE 343. COMPUTER DATA STRUCTURES

A study of the use of a high-level language to implement complex data structures. These include lists, trees, graphs, networks, storage allocation, file structure and information storage and retrieval. Three hours lecture a week. Fee: \$45. (see CS 227) Prerequisite: Egr 245.

# EE 344. OPERATING SYSTEM PRINCIPLES

Analysis of the computer operating systems including Batch, Timesharing, and Realtime systems. Topics include sequential and concurrent processes, processor and storage management, resource protection, processor multiplexing, and handling of interrupts from peripheral devices. Three hours lecture a week. (see CS 326)

# Prerequisite: EE 343/CS 227.

#### EE 346. COMPUTER ARCHITECTURE

A study of the design, organization, and architecture of computers, ranging from the microprocessors to the latest "supercomputers." (see CS 330) Prerequisite: Egr 342 or EE 342.

# EE 350. MEDICAL INSTRUMENTATION

Applied medical instruments such as ultrasonic devices and signal processing units for ECG and EEG are discussed. The design principles of electrodes, hemodialysis devices, catheters, clinical instruments, intensive care units (ICU's) and pacemakers are treated. Mechanical and electrical design techniques are developed.

Prerequisite: Junior or senior standing in engineering or science.

# **EE 361. COMMUNICATION SYSTEMS**

Fundamental properties of signals. Principles and techniques of linear signal processing. Modulation and demodulation systems, including pulse. Sampling, channel capacity, and coding. Methods of multiplexing. Modulator and multiplexer design. Noise and its effects on communication. Three hours lecture a week.

Prerequisite: EE 214.

# EE 376. OPTO-ELECTRONIC ENGINEERING

Wave optics, diffraction, and interference. Lasers and applications including modulation and detection. Optical components and devices. Fiber optics and couplers. Communication and system design concepts. Three hours lecture a week. Prerequisite: EE 271 and EE 332.

EE 381. ADVANCED MICROELECTRONICS LAB Four credits The theoretical and practical aspects of techniques utilized in the fabrication of semi-conductor devices. Crystal growth, solid solubility, alloying and diffusion, oxide masking and epitaxy. Thin and thick film techniques. Device fabrication procedures in microelectronics, and the electrical performance of devices based on these techniques. Ion implantation system and method of fabrication. One hour lecture and one six-hour lab a week. Fee: \$45.

# Prerequisite: Senior engineering standing.

EE 382. ADVANCED COMMUNICATION AND ANTENNA LAB Four credits

Characterization and measurement of microwave components, devices, and systems. Emphasis on testing and design criteria using swept frequency and dynamic techniques. Network and spectrum analyzers. Antenna radiation pattern measurements using the antenna range test facility. Microwave communication link design and testing. CAD utilization in MW systems. Coherent optical wave generation and modulation. Laser communication. One hour lecture and one six-hour laboratory a week. Fee: \$45.

Prerequisite: Senior engineering standing.

# The School of Engineering and Physical Sciences

#### EE 391. SENIOR PROJECTS I

**One credit** Design and development of selected projects in the field of electrical engineering under the direction of a staff member. Technical as well as economic factors will be considered in the design. A professional paper and detailed progress report are required. Prerequisite: Senior standing in engineering.

#### EE 392. SENIOR PROJECTS II

Two credits Design and development of selected projects in the field of electrical engineering under the direction of a staff member. Technical as well as economic factors will be considered in the design. This is a continuation of the EE 391. A professional paper to be presented and discussed in an open forum is required. Prerequisite: EE 391.

#### EE 395-396. INDEPENDENT RESEARCH

One to three credits each Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. Prerequisite: Approval of department chairman is required.

#### EE 397. SENIOR SEMINAR

Presentations and discussions of selected topics. Prerequisite: Senior engineering standing.

EE 398. TOPICS IN ELECTRICAL ENGINEERING

# **Three credits**

One to three credits

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Selected topics in the field of electrical engineering. These may include one or more of the following: control systems; information theory; signals and noise measurements; communication systems; network design and synthesis; magnetic and non-linear circuits; digital and analog systems; computer systems; medical engineering; power systems and generation. May be repeated for credit. Three hours lecture each week.

Prerequisite: Junior or senior engineering standing.

# **Materials Engineering**

#### MAE 210. INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING

**Three credits** 

Application of materials properties to engineering design. Introduction to atomic arrangements, crystal structures, imperfection, phase diagrams, and structure-property relations. Fundamentals of iron, steel, and non-ferrous materials. The behavior of materials in environmental conditions. Three hours lecture a week. Prerequisite: Phy 201, 202.

#### MAE 231. CERAMICS

### **Three credits**

Structure and properties of ceramic crystalline solids, glasses, and clays. Defect structure, atom movement, interfaces, and ceramic phase diagrams. Processing and engineering application of ceramics. Three hours lecture a week. Prerequisite: MaE 210.

# MAE 234. ELECTROCHEMISTRY

# **Three credits**

Fundamentals of electrochemistry and the application of electrochemical concepts to corrosion control, battery development, fuel cells, electroplating, and electrolytic industries. Three hours lecture a week Prerequisite: MaE 210.



# The School of Engineering and Physical Sciences

Three credits

Four credits

Three credits

Three credits

Three credits

# MAE 241. PHYSICAL METALLURGY

Properties of pure metals, constitution, structure, and properties of alloys. Mechanical and thermal treatments of metals and alloys. Influence of microstructure on properties of metals and alloys. Interaction between microstructure, properties, and engineering design. Three hours lecture a week. Prerequisite: MaE 210.

MAE 298. TOPICS IN MATERIALS ENGINEERING One to three credits Selected topics in the field of materials engineering.

Prerequisite: Sophomore or junior standing or permission of instructor.

# MAE 311. X-RAY DIFFRACTION

Study of structure and composition of solids using X-rays. Effects of annealing, substructures, cold work, preferred orientation, and ordering. Principles of design and applications of X-ray diffraction techniques. Three hours lecture and one three-hour laboratory a week. Fee: \$45. Prerequisite: MaE 210.

# MAE 321. THERMODYNAMICS AND PHASE EQUILIBRIA I

Three credits Fundamentals of thermodynamics. Phase and reaction equilibria. Behavior of gases and solutions. Theory of alloy phases. Thermodynamic approach to phase diagrams and electrochemistry. Electron theory of phase formation. Three hours lecture a week. Prerequisite: MaE 210.

#### MAE 322. THERMODYNAMICS AND PHASE EQUILIBRIA II Three credits Fundamentals of thermodynamics. Phase reaction equilibria. Behavior of gases and solutions. Theory of alloy phases. Thermodynamic approach to phase diagrams and electrochemistry. Extractive metallurgical application and laboratory experiments. Two hours lecture and two hours laboratory a week. Fee: \$35. Prerequisite: MaE 321.

#### MAE 332. POLYMERS

Introduction to high polymers as an engineering material. The mechanical, electrical, and optical properties of polymers and polymer applications. Two hours lecture a week and one two-hour laboratory a week. Fee: \$35. (same as Chm 358) Prerequisite: MaE 210 and Chm 231.

#### MAE 342. MECHANICAL METALLURGY

The mechanical properties of materials including: elasticity, plasticity, anelasticity, viscoelasticity, dislocation theory, fracture, fatigue, and deformation of single crystal and polycrystalline materials. Testing and deformation processing of materials. Mechanical properties as engineering design parameters. Two hours lecture and two hours laboratory a week. Fee: \$35. Prerequisite: MaE 210.

MAE 381-382. ADVANCED ENGINEERING LAB I, II Three credits each Topics of commercial importance in materials science and engineering. Instrumentation, experimental techniques, energy conversion, transformations. Research and development laboratory projects, material process and properties. Fee: \$45 per semester. Prerequisite: Senior MaE standing.

# MAE 384. MATERIALS DIAGNOSTIC LABORATORY

Study the aggregation, size, and microstructure of the products of high temperature thermochemical reactions and equilibria by microscopy technique, study the microhardness determination technique of ceramographic specimens. Qualitative and quantitative analysis of an alloy or a multi-component oxide. Identification of the components of organic compounds by IR and UR, and NMR. Four point probe electrical conductivity and Hall measurements of semi-conducting materials. Magnetic properties study of perovskite and spinel classes of ferromagnetic compounds. Applications. One hour lecture and one four-hour laboratory a week. Fee: \$45. Prerequisite: MaE 210.

The School of Engineering and Physical Sciences

#### MAE 391. SENIOR PROJECTS I

Design and development of selected projects in the fields of materials engineering under the direction of a staff member. Technical as well as economic factors will be considered in the design. A professional paper and detailed progress report are required. Prerequisite: Senior standing in engineering.

#### MAE 392. SENIOR PROJECTS II

Design and development of selected projects in the field of materials engineering under the direction of a staff member. Technical as well as economic factors will be considered in the design. This is a continuation of MaE 391. A professional paper to be presented and discussed in an open forum is required. Prerequisite: MaE 391.

# MAE 395-396. INDEPENDENT RESEARCH

One to three credits each Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. Prerequisite: Approval of department chairman is required.

#### MAE 397. SENIOR SEMINAR

Presentations and discussions of selected topics. Prerequisite: Senior standing in engineering.

# MAE 398. TOPICS IN MATERIALS ENGINEERING

Selected topics in the field of materials engineering. These may include one or more of the following: X-ray diffraction, structure analysis, phase equilibria, metallurgy, ceramics, physical, mechanical, or electrical properties of materials. May be repeated for credit. Three hours lecture a week.

Prerequisite: Junior or senior engineering standing.



# Page 135

#### **One credit**

**Two credits** 

One to three credits

Three credits



# The College of Arts and Sciences

# The College of Arts and Sciences

Eng 10

Core R

PE 100

Page 137

3

12

0

3

3

9

0

15

6

15

3

12

15

# **Recommended Course Sequence for a Degree in English**

First Semester		Second Semester
1 Composition I	3	Eng 102 Composition II
equirements	12	Core Requirements
Activity	0	PE 100 Activity
	15	

#### Third Semester

	rinia ooniootor	
Eng 151	Western World Literature	3
Eng 253	Survey of English Literature	3
Core Rec	uirements	9
PE 100	Activity	0
		15

Fourth Semester Eng 254 Survey of English Literature Eng 201 Advanced Composition Core Requirements PE 100 Activity

# Fifth Semester

Eng 220	History of	the	Eng.	Language	
Major Ele	ctives*				
Free Elect	tives				

Maior Electives

**Free Electives** 

Seventh Semester		Eighth S
	15	
res	6	Free Electives
ives	0	iviajor Electives

# Eighth Semester

Eng 397 Free Electives

**Sixth Semester** 

Eng 225 Transformational Grammar

Students select major electives to meet requirements in their area of concentration,

3

12

15

ENG 99 ENGLISH AS A SECOND LANGUAGE An introduction to English for non-native speakers. Three credits

ENG 100. WRITING WORKSHOP Three credits A developmental course concentrating on the fundamentals of writing. Combines extensive practice in the writing of expository prose with systematic study of grammar and rhetoric.

ENG 101. COMPOSITION Principles of exposition; collateral reading; writing of themes. Three credits

ENG 102. COMPOSITION Three credits
Principles of exposition continued; introduction to literature; writing of themes; research pa-

Professor Karpinich, Chairman; Professors Emeriti Lord, Marban, Rizzo; Professors Fiester, Gutin, Kaska, Terry; Associate Professor R. Heaman; Instructors Anderson, Hall.

ENGLISH

Total minimum number of credits required for a B.A. degree – 120. Total minimum number of credits required for a minor – 18.

The Department of Language and Literature offers a variety of programs for students interested in language and the arts: they may major in English, in French, in German, or in Spanish. These programs are broadly based in the values traditionally associated with humane learning, and prepare students for such diverse careers as teaching, law, government service, theater, communications, and business.

Students who major in English are required to take Eng 101 and 102 in their freshman year; and Eng 151, 253, and 254 in their sophomore year. They may choose concentrations as follows:

Literature. The concentration in literature requires 24 credit hours in advanced (above 200-level) literature courses. These must include one course in a major writer, one course in either the novel or drama, one course in American literature, two period courses in English literature before 1900, and one seminar.

Qualified students who concentrate in literature may be invited to participate in an honors program, which may lead to graduation with distinction in English. The program consists of a planned series of seminars and independent research in the junior and senior years, culminating in a thesis and a comprehensive examination.

Writing. The concentration in writing requires 12 credit hours in advanced literature courses; Eng 201 and nine additional credit hours in advanced writing courses; and the submission of a portfolio of the student's work.

**Linguistics.** The concentration in linguistics requires 12 credit hours in advanced literature and writing courses, and Eng 220, 222, 225, and 226.

Students who choose a minor in English are required to take English 151 and 152 and an additional twelve credits in courses beyond the 100 level.

Students may be certified as public school teachers in English with concentrations in literature or writing. Students who seek certification must be especially careful in selecting courses to meet their professional needs. They are expected to arrange their programs in close consultation with their advisors.



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conferences.

# The College of Arts and Sciences

Three credits

**Three credits** 

Three credits

**Three credits** 

Three credits

#### The College of Arts and Sciences

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Three credits

**Three credits** 

 ENG 305-306.
 THE TEACHING OF ENGLISH
 Six credits

 A study of the problems of teaching the language arts in the secondary schools.
 Prerequisite: Eng 152 or 254 and permission of department chairperson.

ENG 310. MEDIEVAL ENGLISH LITERATURE Three credits
A study of English literature to 1500, exclusive of Chaucer and the drama.
Prerequisite: Eng 152 or 254.

ENG 312. CHAUCER Three credits
Study of Chaucer's life and major works, including "The Canterbury Tales" and "Troilus and
Criseyde."
Prerequisite: Eng 152 or 254.

ENG 320. TUDOR PROSE AND POETRY Study of English non-dramatic literature from 1485 to 1603. Prerequisite: Eng 152 or 254.

ENG 321. EARLY ENGLISH DRAMA Three credits Study of the drama from the tenth century to 1642; reading of plays by pre-Elizabethan and Elizabethan dramatists exclusive of Shakespeare. Prerequisite: Eng 152 or 254.

ENG 325. SHAKESPEARE Three credits A study of selected plays; written reports on others not studied in class. Prerequisite: Eng 152 or 254.

ENG 330. SEVENTEENTH CENTURY PROSE AND POETRY Three credits A study of the non-dramatic literature of the period. Prerequisite: Eng 152 or 254.

ENG 335. MILTON A study of Milton's poetry and major prose. Prerequisite: Eng 152 or 254.

ENG 341. RESTORATION & EIGHTEENTH CENTURY DRAMA Three credits Study of the drama from 1600 to 1780. Prerequisite: Eng 152 or 254.

ENG 343. THE EIGHTEENTH CENTURY Three credits Study of the chief poets and essayists of the eighteenth century. Prerequisite: Eng 152 or 254.

ENG 345. EARLY ENGLISH NOVEL Three credits Study of English prose fiction of the sixteenth and seventeenth centuries; rise of the novel to the close of the eighteenth century. Prerequisite: Eng 152 or 254.

ENG 354. ROMANTIC PROSE AND POETRY Three credits Study of Blake, Wordsworth, Coleridge, Shelley, Keats, and Byron, with related prose writers of the Romantic Period. Prerequisite: Eng 152 or 254.

ENG 360. VICTORIAN PROSE AND POETRY Three credits Readings in Tennyson, Browning, Arnold, and other significant writers of the Victorian Age. Prerequisite: Eng 152 or 254.

ENG 152. WESTERN WORLD LITERATURE Survey of western world literature from the eighteenth century to the present. Prerequisite: Eng 151.

ENG 151. WESTERN WORLD LITERATURE

Prerequisite: Eng 102, or equivalent in composition.

ENG 201. ADVANCED COMPOSITION A study of rhetorical types and strategies. Reading and intensive practice. Prerequisite: Eng 102.

ENG 202. TECHNICAL WRITING Three credits A study of the types and strategies of technical writing. Reading and intensive practice. Prerequisite: Eng 102.

Study of western world literature to the beginning of the eighteenth century; lectures, quizzes,

ENG 203. CREATIVE WRITING Three credits Training in the selection and use of materials for writing the short story; attention is also given to some poetic forms and to the writing of short plays. Prerequisite: Eng 102.

ENG 220. HISTORY OF THE ENGLISH LANGUAGE Three credits Study of the origins of the English language and of the principal phenomena of later development. Prerequisite: Eng 152 or 254.

ENG 222. INTRODUCTION TO LINGUISTICS An introduction to the methods and materials of linguistic analysis. Prerequisite: Eng 152 or 254 and 220 or consent of instructor.

ENG 225. COMPARATIVE GRAMMAR Three credits A comparative and critical study of traditional and structural English grammar. Prerequisite: Eng 152 or 254 and 220 or consent of instructor.

ENG 226. TRANSFORMATIONAL GRAMMAR Three credits Intensive study of the principles of generative-transformational grammar and their applications in the analysis of English. Prerequisite: Eng 152 or 254 and 220 or consent of instructor.

ENG 253. SURVEY OF ENGLISH LITERATURE Three credits A study of the works and movements in English literature from Anglo-Saxon period through the eighteenth century. Prerequisite: Eng 102.

ENG 254. SURVEY OF ENGLISH LITERATURE Three credits A study of the works and movements in English literature from the Romantic movement to the present. Prerequisite: Eng 253.

**ENG 301. LITERARY CRITICISM** A study of literary theory and the techniques of analysis. Prerequisite: Eng 152 or 254.



ENG 366. LATER ENGLISH NOVEL Study of the major novelists of the nineteenth and early twentieth centuries Prerequisite: Eng 152 or 254.	Three credits	Associate F
ENC 270 MODEDN DDITICH DOFTDV	These and its	Total min
Study of major British poetry of the twentieth century	I nree credits	Total min
Prerequisite: Eng 152 or 254.	and alloupsets in	Iotai min
ENC 272 MODEDN NOVEL	771	A majo
ENG 5/2. MODERN NOVEL Study of the major poyels of the twentieth century	I nree credits	guage co
Prerequisite: Eng 152 or 254		mally inc
	al company and	also take
ENG 374. MODERN DRAMA	Three credits	four cred
Study of important dramatists, European and American, from the time of I Prerequisite: Eng 152 or 254.	lbsen.	of langua summer o
ENG 381. AMERICAN LITERATURE I	Three credits	Studen
A study of American literature to the Civil War.		ing to a N
Prerequisite: Eng 152 or 254.	since notice and	program
	Personal States	Departme
ENG 382. AMERICAN LITERATURE II A study of American literature from the Civil War to the present time	Three credits	A min
Prerequisite: Eng 152 or 254.	Laboration and the second	A IIIIIC
ENG 383 AMERICAN NOVEL	Three credits	Reco
A study of the American novel from its beginning to the present.	T m cc cr cuits	
Prerequisite: Eng 152 or 254.	and bet broken it	
<ul> <li>120 or 254</li> <li>Contransport of Montropolitical Action 201</li> </ul>	al additions	Eng 101 Co
ENG 384. AMERICAN DRAMA	Three credits	Fr 101 Elem
A study of the American drama from the colonial period to the present.	CTING SECOND	Core Require
Prerequisite: Eng 152 or 254.	CONSTRAINTS OF STREET	PE 100 Acti
ENG 386. MODERN AMERICAN POETRY	Three credits	
Study of major movements and representative figures in modern American	n poetry.	allogiate -
Prerequisite: Eng 152 or 254.	ATTEND SET IN PROPERTY.	Er 202 Inter
ENC 301-302 PROJECTS IN WRITING	ne to three credits	Core Require
Independent projects in writing for advanced students	The to three creaks	PE 100 Acti
Prerequisite: Six credits in advanced writing, and permission of departm	nent.	12100 /100
ENG 395-396. INDEPENDENT RESEARCH O	One to three credits	
Independent study and research for advanced students in the field of the ma	jor under the direc-	
tion of a staff member. A research paper at a level significantly beyond a terr Prerequisite: Approval of department chairman is required.	m paper is required.	Fr 205 Conv Major Electiv
ENG 397 SEMINAR (Maximum of three credits per student) (	ne to three credits	Free Elective
Presentations and discussions of selected topics.	to the creaks	
Prerequisite: Approval of department chairman is required.	Concerned address	0

The College of Arts and Sciences

# ENG 198/298/398. TOPICS

Page 140

Variable credit The study of a special topic in language, literature, or criticism. Possible topics include literature and science, Black literature, semiotics, children's literature, literature and film, literature and religion, etc.

Prerequisite: Eng 152 or 254.

# The College of Arts and Sciences

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# FRENCH

Professor Karpinich.

nimum number of credits required for a B.A. degree — 120. nimum number of credits required for a minor — 18.

or in French consists of twenty-four credit hours in advanced lanurses beyond the 204 course. These twenty-four credits must norclude 301-302. Students seeking public school certification must 205, 206, 207, 208 and 350; and in addition to the required twentyit hours, 390 and English 222. In order to enhance their command ge and their understanding of culture, majors are urged to spend a or semester abroad.

ts majoring in French may elect a five-year program of study lead-Master of Business Administration Degree. Information about this and about career possibilities may be obtained in the office of the ent of Language and Literature, Room 201, Kirby Hall.

or in French shall consist of eighteen credit hours beyond 102.

# mmended Course Sequence for a Degree in French

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Fr 101 Elementary I	3	Fr 102 Elementary II	3
Core Requirements	9	Core Requirements	9
PE 100 Activity	0	PE 100 Activity	0
again Master of Dusiness	15	teriori Pagani deli romi mang	15
Third Semester		Fourth Semester	
Fr 203 Intermediate I	3	Fr 204 Intermediate II	3
Core Requirements	12	Core Requirements	12
PE 100 Activity	0	PE 100 Activity	12
re too Activity		FE TOO Activity	
	15		15
Fifth Semester		Sixth Semester	
Fr 205 Conversation	3	Er 206 Advanced Conversation	2
Major Electives	3	Major Electives	3
Free Electives	9	Free Electives	9
TTEC LIGHTVCS		FIEC LIECTIVES	
	15		15
Seventh Semester		Eighth Semester	
Major Electives	6	Major Electives	6
Free Electives	9	Free Electives	9
	15		15



#### The College of Arts and Sciences

Three credits each

Three credits

Three credits

Three credits

Three credits

Three credits each

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FR 101-102. ELEMENTARY FRENCH FR 395-396. INDEPENDENT RESEARCH Three credits each Fundamentals of spoken and written French, and introduction to French culture. Includes systematic coverage of basic French grammar. Work in language laboratory required. Not recommended for students having completed two or more years of high school French.

# FR 203-204. INTERMEDIATE FRENCH

Emphasis on development of proficiency in spoken and written French. Includes review and further study of grammar. Oral and written work based upon short cultural and literary texts. Work in language laboratory required.

Prerequisite: Fr 102 or two years of high school French or permission of instructor.

#### FR 205. CONVERSATION

**Three credits** Practice in spoken French with emphasis on mastery of idiomatic expression. Informal discussions, reports, debates, and written compositions. Work in language laboratory. Prerequisite: Fr 204 or permission of instructor.

# FR 206. ADVANCED CONVERSATION

Advanced practice in spoken French with emphasis on special problems of idiomatic expression. Discussions, reports, debates, and written compositions on topics of current interest in the French-speaking world.

Prerequisite: Fr 205 or permission of instructor.

# FR 207. PHONETICS

A contrastive study of the sound systems of modern French and modern English. Intensive oral and aural practice including work in the language laboratory. Prerequisite: Fr 204 or permission of instructor.

# FR 208. CULTURE AND CIVILIZATION

Systematic introduction to the political, social, economic, and cultural characteristics of France and the French-speaking world. Readings from a variety of sources including the French press

Prerequisite: Fr 204 or permission of instructor.

# FR 298. STUDIES IN LANGUAGE AND CULTURE

Development of a particular language skill or investigation of an aspect of French culture. Possible topics include translation, commercial French, French in North America or Africa, the French press, and the Fifth Republic. May be repeated for credit. Prerequisite: Fr 204 or permission of instructor.

# FR 301-302. SURVEY OF FRENCH LITERATURE

Survey of representative works from the middle ages to the present. Introduction to major movements, literary traditions, genres, and writers. Prerequisite: Fr 204 or permission of instructor.

# FR 350. ADVANCED GRAMMAR AND COMPOSITION

Three credits Analysis of a variety of French texts and extensive writing practice. Work on special problems of grammar and idiomatic expression.

# Prerequisite: Fr 204 or permission of instructor.

# FR 390. THE TEACHING OF FRENCH

Three credits Examination of methods and techniques of foreign-language teaching. Practical exercises in preparation and presentation of instructional material

One to three credits each Independent study and research in the field of the major under the direction of a staff member. Prerequisite: Approval of department chairman.

(Maximum of three credits per student) One to three credits FR 397. SEMINAR Presentations and discussions of selected topics. Prerequisite: Approval of department chairman.

#### Variable credit

#### FR 198/298/398. TOPICS Examination of special topics in French literature. Possible topics include existentialism, surrealism, symbolism, realism and naturalism, the enlightenment, classical drama, the 19th century novel, the nouveau roman, Proust, Baudelaire, and Moliére. May be repeated for credit. Prerequisite: Fr 301-302 or permission of instructor.

# **GERMAN**

#### Associate Professor Karpinich.

**Core Requirements** 

PE 100 Activity

# Total minimum number of credits required for a B.A. degree — 120. Total minimum number of credits required for a minor — 18.

A major in German consists of twenty-four credit hours in advanced language courses beyond the 204 course. These twenty-four credits must normally include 301-302. Students seeking public school certification must also take 205, 206, 207, 208 and 350; and in addition to the required twentyfour credit hours, 390 and English 222. In order to enhance their command of language and their understanding of culture, majors are urged to spend a summer or semester abroad.

Students majoring in German may elect a five-year program of study leading to a Master of Business Administration Degree. Information about this program and about career possibilities may be obtained in the office of the Department of Language and Literature, Room 201, Kirby Hall.

A minor in German shall consist of eighteen credit hours beyond 102.

# **Recommended Course Sequence for a Degree in German**

Eiret Samastar		Second Semester	
First Semester	podel search	Second Semester	0.6 1620
Eng 101 Composition I	3	Eng 102 Composition II	3
Gr 101 Elementary I	3	Gr 102 Elementary II	3
Core Requirements	9	Core Requirements	9
PE 100 Activity	0	PE 100 Activity	0
	15		15
Third Semester		Fourth Semester	
Gr 203 Intermediate I	3	Gr 204 Intermediate II	3

12

0

Prerequisite: Senior standing and permission of department chairman.



12

0

**Core Requirements** 

PE 100 Activity

# The College of Arts and Sciences

3 3

9 15

Three credits

Three credits

Three credits

**Three credits** 

Fifth Semester		Sixth Semester
Gr 205 Conversation	3	Gr 206 Advanced Conversation
Major Electives	3	Major Electives
Free Electives	9	Free Electives
	15	
Seventh Semester		Eighth Semester
Major Electives	6	Maior Electives
Free Electives	9	Free Electives
	15	

# GR 101-102. ELEMENTARY GERMAN

Three credits each Fundamentals of spoken and written German, and introduction to German culture. Includes systematic coverage of basic German grammar. Work in language laboratory required. Not recommended for students having completed two or more years of high school German.

# GR 203-204. INTERMEDIATE GERMAN

Three credits each Emphasis on development of proficiency in spoken and written German. Includes review and further study of grammar. Oral and written work based upon short cultural and literary texts. Works in language laboratory required.

Prerequisite: Gr 102 or two years of high school German or permission of instructor.

### **GR 205. CONVERSATION**

**Three credits** Practice in spoken German with emphasis on mastery of idiomatic expression. Informal discussions, reports, debates, and written compositions. Work in language laboratory. Prerequisite: Gr 204 or permission of instructor.

#### **GR 206. ADVANCED CONVERSATION**

Advanced practice in spoken German with emphasis on special problems of idiomatic expression. Discussions, reports, debates, and written compositions on topics of current interest in the German-speaking world.

Prerequisite: Gr 205 or permission of instructor.

#### **GR 207. PHONETICS**

A contrastive study of the sound systems of modern German and modern English. Intensive oral and aural practice including work in the language laboratory. Prerequisite: Gr 204 or permission of instructor.

# GR 208. CULTURE AND CIVILIZATION

Systematic introduction to the political, social, economic, and cultural characteristics of the Federal Republic of Germany. Readings from a variety of sources including the German press. Prerequisite: Gr 204 or permission of instructor.

# GR 298. STUDIES IN LANGUAGE AND CULTURE

Development of a particular language skill or investigation of an aspect of German culture Possible topics include translation, commercial German, the German press BRD and the DDR, and the Third Reich. May be repeated for credit. Prerequisite: Gr 204 or permission of instructor.

The College of Arts and Sciences

Prerequisite: Gr 204 or permission of instructor.

# GR 301-302. SURVEY OF GERMAN LITERATURE Three credits each Survey of representative works from the middle ages to the present. Introduction to major movements, literary traditions, genres, and writers.

GR 350. ADVANCED GRAMMAR AND COMPOSITION Three credits Analysis of a variety of German texts and extensive writing practice. Work on special problems of grammar and idiomatic expression. Prerequisite: Gr 204 or permission of instructor.

# GR 390. THE TEACHING OF GERMAN

**Three credits** Examination of methods and techniques of foreign-language teaching. Practical exercises in preparation and presentation of instructional materials. Prerequisite: Senior standing and permission of department chairman.

GR 395-396. INDEPENDENT RESEARCH One to three credits each Independent study and research in the field of the major under the direction of a staff member. Prerequisite: Approval of department chairman.

GR 397. SEMINAR (Maximum of three credits per student) One to three credits Presentations and discussions of selected topics. Prerequisite: Approval of department chairman.

#### GR 198/298/398. TOPICS

Variable credit

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Examination of special topics in German literature. Possible topics include expressionism, naturalism, romanticism, storm and stress, the Roman, the Novelle, Goethe, Hauptmann, Rilke, and Kafka. May be repeated for credit.

Prerequisite: Gr 301-302 or permission of instructor.

# HEALTH RECORDS ADMINISTRATION

See Health Sciences Programs below.

# **HEALTH SCIENCES PROGRAMS**

Temple University College of Allied Health Professions and Wilkes College have established affiliated programs to meet the need for increasing numbers of educated, highly skilled health care professionals. The programs are designed to prepare men and women in their respective fields to participate in comprehensive health care, and develop necessary attitudes to become competent professionals.

Affiliated programs are offered in the following five areas:

**Physical Therapy Occupational Therapy** Health Records Administration Medical Technology Nursing



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**Occupational Therapy** 

Science

Social Sciences

Science

Social Science

Nursing Science

Social Science Humanities Page 147

Successful completion of the selected program at the College of Allied Health Professions will lead to the Bachelor of Science degree from Temple University.

The Allied Health Programs require four years of study. The first two years of study or the equivalent are done at Wilkes College and the final two years at Temple University College of Allied Health Professions. Academic preparation at Wilkes College as well as admission requirements at Temple will differ somewhat for each program.

The prerequisite courses which are required for admission to Temple in each program are listed below.

# **Course Requirements for All Students**

Temple University Programs	Credits	Wilkes College Equivalents <sup>1</sup>
Humanities	6-8	Eng 101-102 English Composition
Social Science	3-4	Soc 101 Sociology
Psychology	3-4	Psy 232 Human Behavior

# **Additional Departmental Requirements**

Medical Technology		
Science	8-9	Bio 121-122 General Biology
	8-9	Chm 115-116 General Chemistry
	8-9	Chm 231-232 Organic Chemistry
	6-8	Mth 101-102 Fundamentals of Mathematics OR
	3-4	Mth 105 Analytical Geometry & Calculus
Health Records Administration		
Social Science	3-4	Psy 221 Developmental Psychology
Science	8-9	Bio 121-122 General Biology
	6-8	Bio 115-116 Anatomy & Physiology (with lab) OR
	3-4	Bio 115 Comparative Anatomy & Physiology (with lab) AND
	3-4	Natural Science Elective (Chm, Physics, Adv. Biology)
Math	6-8	Mth 101-102 Fundamentals of Mathematics OR
	3-4	Mth 105 Analytical Geometry & Calculus
Humanities	6-8	Humanities Electives

8-9 Bio 121-122 General Biology 3-4 Bio 115 Anatomy & Physiology Chm 115 Chemistry 4 4 Phy 105 Physics 3-4 Mth 101 Fundamentals of Mathematics AND Mth 150 Statistics 3-4 3-4 Psy 221 Developmental Psychology 3-4 Psy 232 Human Behavior

# Physical Therapy

	8-9	Bio 121-122 General Biology	
	8-9	Phy 105-106 General Physics	
	8-9	Chm 115-116 Chemistry	
	6-8	Mth 101-102 Fundamentals of Mathematics OR	
	3-4	Mth 105 Analytical Geometry & Calculus	
e	3-4	Psy 331 Abnormal Psychology	

Temple University Programs Credits Wilkes College Equivalents<sup>1</sup>

4	Bio 121 General Biology
4	Bio 113 Microbiology
3-4	Mth 150 Statistics
6-8	Chm 115-116 Chemistry
6-8	Bio 115-116 Anatomy & Physiology
3-4	Psy 221 Developmental Psychology
3-4	Language, Philosophy, Literature,
	History, Religion, or Music/Art
	Appreciation

See various departmental sections of the Bulletin for course descriptions.

STUDENTS ARE STRONGLY URGED TO CONSULT THEIR AC-ADEMIC ADVISOR TO INSURE THAT THEY ENROLL IN THE APPROPRIATE COURSES.

1See various departmental sections of the Bulletin for course descriptions



# The College of Arts and Sciences

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# The College of Arts and Sciences

# HISTORY

#### Professor Berlatsky, Chairman; Professors Emeriti Driscoll, Kaslas, Leach; Professors Cox, Hartdagen, Rodechko, Shao; Assistant Professors Bauzon, Behuniak-Long, Berg, Meyers, Tuhy; Adjunct Professor Thomas.

# Total minimum number of credits required for a B.A. degree - 121. Total minimum number of credits required for a minor -18.

Wilkes College requires 121 credit hours for the B.A. degree in history. These include 45-65 credit hours in core courses and 30 credit hours in history. History 101-102, History 207-208, and 18 credit hours in history courses numbered 300 and above are required. The 300-level courses must include a minimum of six hours each in American and non-American topics.

A variety of career options are open to history majors. Since history is a synthesis of the life experience that examines past economic, social, political, scientific, and religious conditions, a careful selection of history courses and elective credit hours will allow students to pursue career interests in business, government, teaching, communications, law, and social service. The history major includes a considerable number of elective credit hours that students may use to develop career interests. The Department also has a 5-year program leading to a B.A. in History and a Masters in Business Administration.

Normally, History 101-102 will fulfill the core requirement in history. However, students may substitute advanced courses with the written approval of the instructors of the advanced courses or the department chairman.

A minor in history shall consist of 18 credit hours in courses offered by the department. These should include the 101-102 sequence.

# **Recommended Course Sequence for a Degree in History**

3	11-1-100 111-11-01-111-11-11
	HSt 102 World Civilization II
3	Eng 102 Composition II
9	Core Requirements
0	PE 100 Activity
15	
	Fourth Semester
3	Hst 208 American History II
12	Core Requirements
0	Free Electives PE 100 Activity
	3 9 0 15 3 12 0

Fifth Semester		Sixth Semester	
Major Electives	6	Major Electives	6
Free Electives	9	Free Electives	9
	15		15
Seventh Semester		Eighth Semester	
Major Electives	3	Major Electives	3
Free Electives	12	Free Electives	13
	15		16

# HST 101-102. WORLD CIVILIZATION

# Three credits each

This course is designed as a survey of all the basic cultures of the world. The major portion of the course will be devoted to the development of western civilization. Attention will also be given to the part played by America in world history, especially during the expansion of Europe and in the twentieth century.

HST 207-208. AMERICAN HISTORY **Three credits each** A general survey of American history from colonial times to the present.

HST 315. ANCIENT HISTORY: NEAR EAST Three credits The birth of civilization in Mesopotamia and Egypt. Babylonian, Persian, and Judaic backgrounds of western civilization. Attention will also be paid to certain lesser civilizations, with emphasis on the role of archaeology.

#### HST 316. ANCIENT HISTORY: CLASSICAL WORLD

**Three credits** 

**Three credits** 

**Three credits** 

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The direct Greco-Roman antecedents for western civilization will be developed, beginning with Mycenae, through Homer, the Golden Age, Hellenistic world, and the rise and fall of Rome. Emphasis will be on the cultural contributions of each group and period to our present world.

# HST 321. AMERICAN SOCIAL HISTORY

#### **Three credits** This course entails a consideration of the development of American society from the colonial period until present time. Attention will especially focus on the rise of industrialism and its impact on society in the late nineteenth and twentieth centuries.

# HST 322. AMERICAN INTELLECTUAL HISTORY

**Three credits** This course is a survey of the formative ideas which seem most to have influenced American perceptions of the individual, society, and the drift of human affairs. The focus is upon the late nineteenth and early twentieth centuries because this period is the time when seminal ideas were articulated in America.

# HST 324. AMERICAN ECONOMIC HISTORY

A survey of the evolution of the American economy from colonial dependency to modern industrial maturity. Emphasis will be placed upon the development of the United States as an industrial world power since about 1850.

# HST 325. AMERICAN ETHNIC HISTORY

A study of the institutions and problems that have characterized various immigrant, black, and unities from colonial times to the present



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Three credits

**Three credits** 

Three credits

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# HST 326. URBAN HISTORY

A survey of the origins and development of the modern city. Primary emphasis is given to the evolution of the city in America and its influence on American society and culture. Referenceis made to the cities of modern Europe and Asia primarily for comparative purposes.

#### HST 328. HISTORY OF THE FOREIGN POLICY **OF THE UNITED STATES**

Three credits A selective treatment of major themes in American foreign policy from the founding of the Republic to the present.

#### HST 331. COLONIAL AMERICA

Discovery, exploration, and settlement; development of social, political, religious, and intellectual institutions; independence and political reorganization.

# HST 332. THE NATIONAL PERIOD

A study of the political and economic history of the United States from 1783 to 1865. Special attention will be given to the evolution of sectional differences and the culmination of these differences in intersectional warfare.

# HST 333. THE AGE OF BIG BUSINESS, 1865-1914

A study of the political and economic history of the United States from 1865 to 1914. Special attention will be paid to the period of congressional dominance and the restoration of presidential power at the turn of the century; the economic, social, and political consequences of the industrial revolution; and the rise of urban America.

# HST 334. THE UNITED STATES, 1900-1945

Three credits The emergence of the United States as a world power and the corresponding development of its political, economic, social, and religious institutions.

# HST 335. THE UNITED STATES SINCE 1945

An examination of the political, social, and economic changes in the United States since World War II. Special attention is paid to America's dominant role in the immediate post-war world and how changing conditions over the past forty years have altered this role.

#### HST 341-342. HISTORY OF GREAT BRITAIN AND THE **BRITISH EMPIRE AND COMMONWEALTH**

Three credits each A study of British history from the Neolithic period to present times. The first semester will cover social, economic, and political developments to 1783, including expansion overseas. The second semester will cover the consequences of the industrial revolution and the evolution of the Empire into the Commonwealth.

#### HST 348. HISTORY OF RUSSIA

A study of the political, social, and intellectual history of Russia. Emphasis is placed upon the emergence of Russia as a major power after 1700.

#### HST 351. MEDIEVAL EUROPE

Consideration will be given to political, economic, and cultural institutions and activities, and intellectual development in Medieval Europe to the early Renaissance.

#### HST 352. THE RENAISSANCE AND REFORMATION

Within the political and economic framework of the period, study will be made of the culture of the Renaissance, the religious reforms and conflicts resulting from the crisis in the sixteenth century.

#### HST 353. AGE OF ABSOLUTISM

The political, social, economic, intellectual, and cultural development of Europe and depen-

HST 354. THE ERA OF THE FRENCH REVOLUTION **Three credits** AND NAPOLEON A study of the structure of the Ancien Regime and an examination of the causes, events, and consequences of the French Revolution culminating in the Napoleonic Empire.

HST 355. EUROPE IN THE NINETEENTH CENTURY **Three credits** A study of the political, social, and cultural development of Europe from the Congress of Vienna to World War I.

HST 356. EUROPE IN THE TWENTIETH CENTURY Three credits Against a background of the internal and international developments of the leading powers, students will study the origins and results of the two World Wars.

#### HST 361-362. HISTORY OF THE FAR EAST

Three credits each A study of the history of the civilizations developed in India, China, and Japan with emphasis on their interrelations and distinctive characteristics and on their transformation in response to the penetration of western civilization from the sixteenth century onward. Some attention will be given to similar developments and changes among the countries of Southeast Asia. Fall semester: to c. 1760. Spring semester: 1760 to present.

#### HST 363. HISTORY OF MODERN CHINA **Three credits**

A study of Chinese history since 1840 with special emphasis on social, political, economic, and intellectual developments.

#### HST 364. DIPLOMATIC HISTORY OF THE FAR EAST **Three credits** A study of the relationship of the states of the Far East with one another and the West in the nineteenth and twentieth centuries.

#### HST 365. HISTORY OF CHINESE COMMUNISM Three credits This course is designed to examine the origins of Chinese Communism, the rise of the Chinese Communist Party to national power, and the essential features of Mao Tse-Tung's strategies and policies.

HST 367. HISTORY OF MODERN INDIA **Three credits** A study of the political, social, and economic development of the Indian sub-continent since 1500.

# HST 376. WORLD WAR II

**Three credits** Consideration of the causes of the war, military strategy and tactics, diplomatic interests of the participants, and resulting cold war problems.

# HST 382. HISTORY OF LATIN AMERICA

This course is a survey of the development of Latin American political, cultural, and economic life, from ancient times, through the Iberic colonization and period of independence, to the tumultuous era of the mid and late 20th century.

#### HST 391. HISTORIOGRAPHY AND RESEARCH

An introduction to historical research and writing. The writings and ideas of major historians of the past and present are examined. The student is exposed to research methods, particularly in the area of primary sources, and to the construction and criticism of the historical monograph. Prerequisite: Approval of instructor.

#### HST 395-396. INDEPENDENT RESEARCH

# One to three credits

Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. site: Approval of department chairman.

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**Three credits** 

**Three credits** 

dencies from 1600 to about 1750.

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Variable credit

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HST 397. SEMINAR (Maximum of three credits per student) One to three credits Presentations and discussions of selected topics.

Prerequisite: Approval of instructor is required.

HST 198/298/398. TOPICS

Special topics in history. This course will be offered from time to time when interest and demand justify it.

# **INDIVIDUALIZED STUDIES**

This program is designed for those capable and motivated students who wish to undertake a course of study that cannot be provided for under any of the normal B.A., B.S. degree programs. The student will be responsible for generating a coherent proposal for a program of studies. This proposal must be selected by the student, approved by an advisor, and then by the Individualized Studies Committee. The program of studies may include courses offered by all departments at Wilkes College. In addition, credit may be assigned for appropriate off-campus study, work, and and/or travel. Credits may be granted for knowledge or experience obtained prior to enrollment, with approval of the appropriate department and the Individualized Studies Committee.

# **Degree Requirements**

The basic requirement for the degree in Individualized Studies is the accumulation of 120 credits. Although there are no specific course requirements, the spirit of the Wilkes College core curriculum is to be respected.



# INTERNATIONAL STUDIES

Assistant Professor Tutwiler, International Studies Advisor.

Total minimum number of credits required for a B.A. degree - 120.

The interdisciplinary major in International Studies (I.S.) provides an excellent liberal arts preparation for a variety of careers and professions. The major is structured to permit concentration in fields leading to specific careers in business, government, international organizations, the military, teaching, or any technical or arts field. It is also structured to permit a period of study abroad with easy transfer of credits to the major.

The total number of hours required for graduation with an International Studies major is 120, of which 45-65 are the core requirements and 33 are major requirements. For the International Studies major, the following courses at the introductory level are required, all of which can be counted in the core: History 101-102; Economics 101-102; Political Science 105; Anthropology 101; and Foreign Language at 204 competence. Students are also required to take 12 hours of advanced Foreign Language. In addition, students must complete 2 courses from among Anthropology 270, Political Science 202, and Economics 229, plus one course from among Economics 224, 225 and 226.

Before completing the International Studies major requirements, students should select the **area of concentration** in which 12 more credits are required. Options for this concentration are one of several culture areas (Asia, Communist Societies, Third World, or Western Europe), or International Economics, or International Politics, or Language. Specific courses contributing to one of these concentrations and the I.S. core requirements will be worked out with the International Studies Advisor and may include courses taken while studying abroad at another institution. Major electives in the areas of concentration are listed below.

# **Culture Areas:**

Asia Anthropology 270, 352, and/or 392 Economics 224, 225, 228, and/or 229 History 361, 362, 363, 364, 365, and/or 367 Political Science 202 and/or 325, 329

Communist Societies Economics 224, 225, 227, and/or 229 History 348, 362 (or 363), and/or 365 Philosophy 230

Political Science 202 and/or 325, 329



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# Third World Anthropology 270, 352, 353, and/or 392 Economics 224, 225, 226, and/or 228 History 363, 365, 367, and/or 382 Political Science 202 and/or 325, 329

Sociology 252 Spanish 209 and/or 309

# Western Europe

Economics 224, 227, and/or 229 French 208, 298, and/or 302 German 208, 298, and/or 302 History 342, 356, and/or 376 Political Science 202 and/or 325, 329 Sociology 352 Spanish 208, 298, and/or 302

(NOTE: No more than six hours may be taken in any one discipline listed under individual area concentrations.)

**International Economics:** 

Economics 224, 225, 226, 227, and/or 229

# **International Politics:**

History 328, 348, 364, and/or 376 Political Science 202, 324, 325, and/or 329 (NOTE: No more than 6 hours in History may be taken in this concentration.)

# **Modern Foreign Language:**

12 hours of advanced foreign language courses beyond International Studies core

Except in unusual circumstances, it is expected that International Studies majors will spend a summer, semester, or year abroad in a suitable program of academic study arranged through the Wilkes College Study Abroad Program Coordinator. Credits earned abroad may be applied towards satisfying International Studies major requirements.

Students in the International Studies major have 35-39 credit hours of free electives. Students are urged to take additional language credits to constitute a language minor or major. It is also possible to use electives to constitute a second major in a discipline such as Economics, History, or Political Science.

Advising for the International Studies major is done in the Sociology and Anthropology Department.

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Page 155

3

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15

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3

3

15

# **Recommended Course Sequence for International Studies Major**

3

3

3

3 0

15

3

	First Semester
Eng 101 (	Composition I
Hst 101 V	Vorld Civilization I
Ec 101 Pi	rinciples of Economics I
Ant 101	ntro. to Anthropology
Foreign La	anguage*
PE 100 A	ctivity

and/or

and/or

Ec 229 Comparative

Foreign Language\*

**Core Requirements** 

Foreign Language

**Core Requirements** 

Major Electives

PE 100 Activity

Economic Systems\*

**Fifth Semester** 

**Seventh Semester** 

Second Semester
Eng 102 Composition II
Hst 102 World Civilization II
Ec 102 Principles of Economics II
PS 105 Comparative Government
Foreign Language*
PE 100 Activity

#### **Third Semester** Ec 224 Economic Development Ant 270 Cultural Anthropology and/or PS 202 International Relations Ec 225 International Trade and/or 6 3

6

0

15

15

Ec 226 International Investment
and Finance*
Foreign Language*
Core Requirements
Major Electives
PE 100 Activity

**Fourth Semester** 

# **Sixth Semester**

Study Abroad\*\*

# **Eighth Semester**

3	Foreign Language	
6	Major Electives	
6	Core Requirements	
15	Free Electives Senior Seminar*	

se courses are required for all International Studies Majors.

"Students may elect to spend their junior year on campus. Courses will be selected in consultation with the Internaonal Studies Advisor



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credit hours

19

3

3

23

Total

Total 22

# MATHEMATICS

Professor Sours, Chairman; Professor Emeritus Richards; Professors Merrill, Tillman, Wong: Associate Professors Berard, DeCosmo, Earl, Koch, Salsburg; Assistant Professors Anderson, Simmons; Instructor Kenney.

Total minimum number of credits required for a B.A. degree — 125. Total minimum number of credits required for a B.S. degree — 127. Total minimum number of credits required for a minor — 22. Total minimum number of credits required for a minor in Statistics — 23.

Programs of study leading to the B.A. or B.S. degree with a major or minor in mathematics **or a minor in statistics** are offered by the Department of Mathematics and Computer Science. Also available are the M.S. degree in Mathematics and the M.S. degree in Education with a concentration in mathematics. Graduate programs and a combined five-year B.S.-M.S. degree in mathematics are described in a separate graduate bulletin.

The Department of Mathematics and Computer Science also offers B.A. and B.S. programs in computer science (see page 96), and a B.S. program in computer information systems (see page 93).

# **Major in Mathematics**

The Department offers three tracks through which the baccalaureate degree major requirements in mathematics may be met: general mathematics (GM), applied mathematics (AM), and teacher certification (TC). The program in general mathematics provides preparation for graduate study and research in mathematics. The applied mathematics track is designed to provide a background for graduate study in applied mathematics or statistics, and for careers in industry or government service. The teacher certification track provides preparation for secondary school teaching. The GM and AM tracks, when combined with an appropriate second major or minor, will also provide an excellent foundation for graduation or professional study in business and management; economics; law; medicine; actuarial, computing, engineering, environmental and physical sciences. All three tracks share a common background in algebra, analysis, probability, and computer programming.

The B.A. degree is intended for those who wish to elect more humanities and social science courses, whereas the B.S. degree requires greater concentration in the natural and physical sciences. Both B.A. and B.S. programs are available in all three tracks.

With the approval of the department, a student may earn credits in a maximum of five mathematics or computer science courses by passing special challenge examinations in them. Interested students may obtain further details and application forms from the department chairman.

**Minor in Mathematics** 

**Required Courses:** 

Electives: Any 300-level course in mathematics

Mth 111-112; 202; 211 or 212; 311 or 331

# is relation tor se

# **Minor in Statistics**

In a wide range of sciences, both natural and social, statistical analysis is of major importance both in conducting research and in understanding its findings. Likewise, in governmental planning and industrial management, statistical methods are a necessary tool and constitute a major application of computing. The minor in statistics is intended to support work in a major either in another mathematical science or in a number of other disciplines.

# Required Courses: credit hours Mth 105-106 or Mth 111-112; CS 123; 20 Mth 351-352; and Mth 354 20

**Electives:** 

One of the following: Mth/CS 262; CS 321;	
or a lopics course in statistics	

Required courses for a mathematics major are indicated in the following recommended curriculum outlines, which are based on an extensive prerequisite structure.

# **Recommended Course Sequence for General and Applied Mathematics Tracks**

NOTE: All core requirements should be chosen to satisfy the General Core Requirements listed on pages 46-47, except that science electives must be in accordance with the Department's requirements specified on page 160.

First Semest	er		Second Seme	ster	
	B.A.	B.S.		B.A.	B.S.
Mth 111 Calculus I	4	4	Mth 112 Calculus II	4	4
Eng 101 Composition I	3	3	Eng 102 Composition II	3	3
CS 123 FORTRAN	3	3	Core Requirements	9	9
Programming (or)			PE 100 Activity	0	0
CS 124 COBOL Programmin	Ig			16	16
Core Requirements	6	6		10	10
PE 100 Activity	0	0			
	16	16			



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Mth 202 Set Theory

and Logic

**Third Semester** 

B.A. B.S.

3 3

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B.A. B.S.

4 4

16

3 -16

6

1

6

Third Semester			Fourth Semest		
	B.A.	B.S.		B.A.	B.S.
Mth 202 Set Theory and Logic	3	3	Mth 212 Multivariable Calculus	4	4
Mth 211 Intro. to Linear Algebra & Differential	4	4	Mth 214 Linear Algebra Science Elective <sup>1</sup>	3 3	3 4
Phy 201 (B S ) or		4	Der to Activity	0	0
Science Elective1	3	4	PE TOU ACTIVITY		
Core Requirements	6	6		16	17
PF 100 Activity	0	0			
i e roo nounty					
	16	17			
Fifth Semeste	er		Sixth Seme	ster	
	B.A.	B.S.		BA	RS
Mth 331 <sup>3</sup> Intro. to Abstract Algebra I	4	4	Mth/CS Elective <sup>2</sup>	3	6
Mth 351 Probability and Mathematical Statistics I	3	3		15	15
Science Elective <sup>1</sup>	3	3			
Core Requirements	6	6			
	16	16			
Seventh Semes	ter		Eighth Seme	ster	
	B.A.	B.S.	contract in statistics of service	RA	RS
Mth 3113 Functions of	4	4	Mth/CS Elective2	2	0.0.
a Real Variable	4	4	Free Electives	11	11
Mth/CS Elective <sup>2</sup>	3	3	TTOC LICCIVES		-
Free Electives	9	9		14	14
	16	16			

 See page 160 for the Department's requirements regarding science electives.
 See page 160 for the Department's requirements regarding Mth/CS electives.
 Mth 311 and Mth 331 are offered in alternate years; one of them should be taken in the junior year, the other in the senior year. senior year.

# **Recommended Course Sequence for Teacher Certification Mathematics Track**

**NOTE:** All core requirements should be chosen to satisfy the General Core Requirements listed on pages 46-47, except that science electives must be in accordance with the Department's requirements specified on page 160.

First Semester			Second Semester		
	B.A.	B.S.		B.A.	
Mth 111 Calculus I	4	4	Mth 112 Calculus II	4	
Eng 101 Composition I	3	3	Eng 102 Composition II	3	
CS 123 FORTRAN Programming (or)	3	3	Psy 101 General Psychology	3	
CS 124 COBOL Programming			Core Requirements	6	
Core Requirements	6	6	PE 100 Activity	0	
PE 100 Activity	0	0	erested states to avoid a		
	16	16		16	

Ed 101 Practicum in	1	1	Mth 214 Linear Algebra	3	3
Education			Ed 202 Educational	3	3
Ed 201 Intro. to Education	3	3	Psychology		
Phy 201 General Physics I	120	4	Science Elective <sup>1</sup>	3	4
or Science Elective <sup>1</sup>	3		Core Requirements	3	3
Core Requirements	6	6	PE 100 Activity	0	0
PE 100 Activity	0	0	01 Philosophy 350 or Phil		
	16	17		16	17

Fourth Semester

Mth 212 Multivariable

Calculus

# **Fifth Semester**

Fifth Semeste	r		Sixth Semeste	r	
	B.A.	B.S.		B.A.	B.S.
Mth 331 <sup>3</sup> Intro. to Abstract Algebra I	4	4	Mth 203 The Teachings of Mathematics in	3	3
Mth 343 Intro. to Geometry	3	3	Secondary Schools		
Science Elective <sup>1</sup>	3	3	Mth/CS Electives <sup>2</sup>	3	6
Core Requirements	3	3	Ed 102 Practicum in	1	1
	13	13	Education Core Requirements	6	6
			Free Electives	3	-

Seventh Semes	ster		Eighth Semeste	Eighth Semester		
	B.A.	B.S.		B.A.	B.S.	
Mth 311 <sup>3</sup> Functions of a Real Variable	4	4	Ed 371 The Individual in the Classroom	3	3	
Mth 351 Probability and Mathematical Statistics I	3	3	Ed 380 Professional Semester in Education	15	15	
Mth/CS Elective <sup>2</sup>	25 -	3		18	18	
Free Electives	7	4		10	10	
	14	14				

1 See page 160 for the Department's requirements regarding science electives. 2 See page 160 for the Department's requirements regarding Mth/CS electives. 3 Mth 311 and Mth 331 are offered in alternate years; one of them should be taken in the junior year, the other in the senior year.



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# **Science Electives for Mathematics Majors:**

- B.A. candidates: Any three courses, including a two-semester sequence, in Biology, Chemistry, Earth and Environmental Sciences, or Physics.
- B.S. candidates: Physics 201 and a two-semester sequence in Biology, Chemistry, Earth and Environmental Sciences, or Physics or

Physics 201-202 and at least three credits in Biology, Chemistry, Earth and Environmental Sciences, Physics, Philosophy 350 or Philosophy 352, EE 342 or any Engineering course not cross-listed in Computer Science. (All eleven credits must be in courses numbered above 200 except that Bio 121, 122, Chm 115, 116, or 118 are also acceptable in this requirement.)

# Mathematics/Computer Science Electives for Mathematics **Majors:**

# **General Mathematics Track:**

- One of the following courses: Mth 342, 413, or 432; and One of the following courses: Mth 262, 314, 352, 361, 362, or 364; and for B.A. candidates: Any one Mth or CS course numbered above 200.
- B.S. candidates: Any two Mth or CS courses numbered above 200.

# **Applied Mathematics Track:**

Two of the following courses: Mth 262, 314, 352, 361, 362, or 364; and for B.A. candidates: Any one Mth or CS course numbered above 200. B.S. candidates: Any two Mth or CS courses numbered above 200.

# **Teacher Certification Mathematics Track:**

One of the following courses: Mth 262, 314, 352, 361, 362, or 364; and for B.S. candidates: Any two Mth or CS courses numbered above 200.

# **Summary of Minimum Credit Distribution:**

General and Applied Mathematics Tracks	B.A.	B.S.
Mth 111, 112, 202, 211, 212, 214, 311, 331, and 351	33	33
Mth/CS Electives	9	12
CS 123 or 124	3	3
Phy 201	_	4
Science Electives	9	7
Eng 101-102	6	6
Core Requirements	33	33
Free Electives	32	29
	125	127

Teacher Certification Mathematics Track	B.A.	B.S.
Mth 111, 112, 202, 203, 212, 214, 311, 331, 343, and 351	35	35
Mth/CS Electives	3	9
CS 123 or 124	3	3
Phy 201	CONT DUM	4
Science Electives	9	7
Eng 101-102	6	6
Ed 101, 102, 201, 202, 371, and 380	26	26
Psv 101	3	3
Core Requirements	30	30
Free Electives	10	4
	125	127

# MTH 84. COLLEGE PREPARATORY MATHEMATICS Four hours/week

This course provides the basic mathematics skills for students majoring in fields other than science or engineering. It may also be taken by those who need it to prepare themselves for Mth 100, 101 or 103. Topics covered include: review of arithmetic, introductory algebra, and quantitative reasoning. Credits in this course will not be counted in the graduation requirement in any degree program at Wilkes. Only P (passed) or F (failed) grades are given. Fee: \$50. Offered every fall and summer.

# MTH 100. PRE-CALCULUS MATHEMATICS

# Four credits

A remedial course in advanced algebra and trigonometry designed to prepare students for cal-culus. Content of this course should normally be studied in secondary school. Mathematics and computer science majors will not receive credit in their major for Mth 100.

Prerequisite: Two years of secondary school mathematics in algebra and geometry. Offered every fall, spring, and summer.

# MTH 101. FUNDAMENTALS OF MATHEMATICS I

**Three credits** 

Basic quantitative and analytic techniques and concepts designed to help the student understand science, technology, and human institutions as they bear on the individual citizen. Topics include: graphical presentation of data, exponential growth and decay, probability and statistics, error analysis, introduction to computing, vectors and matrices, and linear programming. Not open to students with credits in Mth 103, 104, or any course in calculus. Offered every fall and summer.

# MTH 102. FUNDAMENTALS OF MATHEMATICS II

**Three credits** A continuation of Mth 101. Not open to students with credits in Mth 103, 104, or any course in calculus.

# Prerequisite: Mth 101.

Offered every spring and summer.

# MTH 103. MATHEMATICS FOR ELEMENTARY

#### SCHOOL TEACHERS I

# **Three credits**

A study of the theory of arithmetic, structure of the number systems, and other topics relevant to the teaching of mathematics in elementary schools. Not open to students with credits in Mth 101, 102, or any course in calculus.

# Offered in the fall semester of odd years and every summer.

# MTH 104. MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS II

Three credits A continuation of Mth 103. Not open to students with credits in Mth 101, 102, or any course in calculus.

# Prerequisite: Mth 103.

Offered in the spring semester of even years and every summer.



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Four credits

Three credits

Three credits

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**DIFFERENTIAL EQUATIONS** 

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Four credits

# MTH 105. CALCULUS FOR LIFE, MANAGERIAL, AND SOCIAL SCIENCES I

Intended primarily for students of social and natural sciences. Topics include: review of algebra, limit, differentiation, integration, sequences and series, partial differentiation, di equations, and probability. Not open to students with credits in Mth 111 or 112. Prerequisite: Geometry, Algebra II, and some knowledge of Trigonometry.

Offered every fall and summer.

# MTH 106. CALCULUS FOR LIFE, MANAGERIAL, AND SOCIAL SCIENCES II

Four credits A continuation of Mth 105. Not open to students with credits in Mth 111 or 112. Prerequisite: Mth 105.

# Offered every spring and summer.

# MTH 111. CALCULUS I

Four credits Calculus of functions of one variable. Topics include: functions, limits and continuity, differentiation, integration and their applications, infinite sequences and series. Not open to students with credits in Mth 105 or 106.

Prerequisite: Mth 100 or at least three years of secondary school mathematics including Geometry, Algebra II, and topics in Trigonometry. Offered every fall, spring, and summer.

# MTH 112. CALCULUS II

Four credits A continuation of Mth 111. Not open to students with credit in Mth 106. Offered every fall, spring, and summer.

# MTH 150. ELEMENTARY STATISTICS

Elementary statistical inference, with an emphasis on ideas, techniques, and applications in the life, physical, and social sciences. Topics include descriptive statistics, confidence intervals. hypothesis testing, contingency tables, multiple regression, and analysis of variance. Not open to mathematics majors or students with credit in Mth 351.

- Prerequisite: Two years of high school algebra.
- Offered every fall and spring.

# MTH 202. SET THEORY AND LOGIC

Designed to provide the logical and set theoretical prerequisites for the upper-level courses in analysis, algebra, computer science, and topology. Topics include: informal logic and propositional calculus, sets, relations, functions, axiom of choice and its equivalents, cardinal and ordinal numbers. Three hours lecture and one hour problem-discussion per week Prerequisite: Mth 112 or consent of department chairman. Offered every fall.

# MTH 203. THE TEACHING OF MATHEMATICS IN SECONDARY SCHOOLS

Three credits This course deals with topics and perspectives that are relevant to the teaching of mathematics in secondary schools (7-12). Topics include: history of modern algebra and geometry as deductive, axiomatic systems; recommendations of and material published by the various organizations (CUPM, SMSG, UICSM, etc.) concerned with the improvement of school mathematics curricula; local and national professional organizations, evaluation of instruction. (same as Ed 203G)

Prerequisite: Junior standing in mathematics. Offered on demand.

#### eigenvectors; first order, linear higher order, and systems of differential equations. Prerequisite: Mth 112.

Offered every fall and summer.

# MTH 212. MULTIVARIABLE CALCULUS

MTH 211. INTRODUCTION TO LINEAR ALGEBRA AND

Four credits Differential and integral calculus of real and vector valued functions. Topics include continuity, partial differentiation, implicit functions, Taylor's Theorem, gradient, curl, line, surface and multiple integrals, inverse functions, theorems of Green and Stokes. Prerequisite: Mth 112.

Topics include: Matrices; determinants; vector spaces; linear transformations; eigenvalues and

Offered every spring and summer.

#### MTH 214. LINEAR ALGEBRA

Three credits

Vector spaces, linear transformations, matrices, determinants, bilinear and quadratic forms, matrix polynomials.

Prerequisite: Mth 112 or consent of instructor. Offered every spring.

MTH 232. ABSTRACT ALGEBRA FOR ELEMENTARY

# SCHOOL TEACHERS

**Three credits** A study of basic concepts of abstract algebra for elementary school teachers. Not open to mathematics or computer science majors or those with credit in Mth 331. Prerequisite: Mth 104 or consent of instructor.

Offered in the fall semester of even years and every summer.

#### MTH 243. GEOMETRY FOR ELEMENTARY SCHOOL TEACHERS

# Three credits

Three credits

A study of topics in informal geometry and measurements for elementary school teachers. Not open to mathematics or computer science majors or those with credit in Mth 343. Prerequisite: Mth 104 or consent of instructor.

Offered in the spring semester of odd years and every summer.

# MTH 260. LINEAR PROGRAMMING

Graphical linear programming, simplex algorithm and sensitivity analysis. Special L.P. models such as the transportation problem, transshipment problem, and assignment problem. May include integer programming, branch and bound algorithm, geometric programming, goal programming. (same as CS 260)

Prerequisite: Mth 106, CS 123.

Offered in the fall semester of odd years.

# MTH 262. OPERATIONS RESEARCH

# **Three credits**

Four credits

A survey of operations research topics such as decision analysis, inventory models, queueing models, dynamic programming, network models, heuristic models, and non-linear programming. (same as CS 262)

Prerequisite: CS 123; Mth 105-106 or Mth 111-112; and some elementary knowledge of matrices.

Offered every spring.

# MTH 311. FUNCTIONS OF A REAL VARIABLE

A rigorous study of the topology of the real line, limits, continuity, differentiation, integration, and series of functions.

Prerequisite: Mth 202 or consent of instructor. Offered in the fall semester of odd years.



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Three credits

Three credits

Three credits

Three credits

Three credits

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**MATHEMATICS II** 

A continuation of Mth 361.

MTH 362. INTRODUCTION TO APPLIED

Prerequisite: Mth 361 or permission of instructor.

MTH 314. FUNCTIONS OF A COMPLEX VARIABLE Three credits Complex functions, limit, continuity, analytic functions, power series, contour integration, Laurent expansion, singularities and residues. Prerequisite: Mth 212 or consent of instructor. Offered in the fall semester of even years.

#### MTH 331. INTRODUCTION TO ABSTRACT ALGEBRA I Four credits

A study of elementary number theory, groups, rings, and fields. Prerequisite: Mth 202 or consent of instructor. Offered in the fall semester of even years.

# MTH 342. INTRODUCTION TO TOPOLOGY

Metric spaces, topological spaces, countability and separation axioms, compactness, connectedness, product spaces. Prerequisite: Mth 311 or consent of instructor.

# Offered in the spring semester of even years.

MTH 343. INTRODUCTION TO GEOMETRY Three credits A study of selected topics from Euclidean geometry, affine geometry, projective geometry, and convexity.

Prerequisite: A year of calculus or consent of instructor. Offered in the fall semester of even years.

#### MTH 351. PROBABILITY AND MATHEMATICAL STATISTICS I

Random variables, probability distributions, expectation and limit theorems, confidence intervals, hypothesis testing, non-parametric methods, multivariate distributions, introduction to linear models.

Prerequisite: Mth 106 or 112 or permission of instructor. Offered every fall.

#### MTH 352. PROBABILITY AND MATHEMATICAL STATISTICS II

A continuation of Mth 351.

Prerequisite: Mth 351 or permission of instructor. Offered in the spring semester of odd years.

# MTH 354. STATISTICAL METHODOLOGY

This course emphasizes applications, using statistical computer packages (SPSS or BMDP) and real data sets from a variety of fields. Topics include estimation and testing; stepwise regression; analysis of variance and covariance; design of experiments; contingency tables; and multivariate techniques, including factor analysis.

Prerequisite: Mth 150 or Mth 351 or consent of instructor.

Offered in the spring semester of even years.

# MTH 361. INTRODUCTION TO APPLIED MATHEMATICS I

Intended for physical science and engineering students. Topics to be selected from: vector, integral, and differential calculus; power series; differential equations; Fourier series; matrices; determinants; and eigenvalue problems.

Prerequisite: Mth 212. Offered every fall.

Offered every spring. MTH 364. NUMERICAL ANALYSIS Numerical methods of differentiation, integration, solution of equations and of differential equations with emphasis on problems that lend themselves to solution using computers. (same

as CS 364) Prerequisite: Mth 211 and CS 123 or consent of instructor. Offered in the spring semester of odd years.

# MTH 397. SEMINAR Presentations and discussions of selected topics. Prerequisite: Approval of department chairman.

MTH 413. FUNCTIONS OF SEVERAL VARIABLES **Three credits** 

A modern treatment of calculus of functions of several real variables. Topics include: Euclidean spaces, differentiation, integration on manifolds leading to the classical theorems of Green and Stokes.

Prerequisite: Mth 214 and 311. Offered when demand warrants.

#### MTH 432. INTRODUCTION TO ABSTRACT ALGEBRA II **Three credits**

A continuation of Mth 331. Polynomial rings, ideals, field extensions, and Galois Theory. Prerequisite: Mth 331. Offered when demand warrants.

# MTH 470. READING COURSE

One to three credits

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**Three credits** 

**Three credits** 

One to three credits

Individual study of special topics under the supervision of a faculty member. Designed for students who have completed a substantial amount of course work in mathematics. May be repeated for credit.

Prerequisite: Senior standing and consent of department chairman.

MTH 198/298/398/498. TOPICS IN MATHEMATICS Variable credits A study of topics of special interest. It may be a continuation and intensive study of topics begun in the upper-level courses in analysis, topology, algebra, and probability. May be repeated for credit.

Prerequisite: Varies with topics studied.

Additional 500-level graduate courses in mathematics are open to qualified mathematics majors. See the graduate bulletin for complete listing.



# The College of Arts and Sciences

# The College of Arts and Sciences

Analysis

# MEDICAL TECHNOLOGY

# Total minimum number of credits required for a B.S. degree – 128.

The National Accrediting Agency for Clinical Laboratory Science recommends certain requirements for a program of training leading to a B.S. degree. The curriculum offered at Wilkes College follows these recommendations and is presented below.

At the completion of three years, the student may be accepted by an affiliated program of medical technology for a period of twelve months' clinical training. Following graduation from the program, the student will receive the B.S. degree in medical technology from the College and will be eligible for certification as a medical technologist by the Board of Registry of Medical Technology or as a Clinical Laboratory Scientist by the National Certification Agency for Medical Laboratory Personnel.

Wilkes College has established a formal affiliation with the Allentown Hospital Association in Allentown, Pa., the Robert Packer Hospital in Sayre, Pa., the Scranton Medical Technology Consortium, Scranton, Pa., Somerset Medical Center, Somerville, N.J., and the Wilkes-Barre General Hospital in Wilkes-Barre, Pa. Fulfillment of the fourth year requirement at non-affiliated hospitals requires special permission of the department chairman and of the Academic Standards Committee.

First Semester	
Bio 121 Principles of Modern Biology I	4
Chm 115 Elements and Compounds	4
Eng 101 Composition I	-
Mth 105 or 111 Calculus I	4
PE 100 Activity	0

#### **Fifth Semester** Sixth Semester Bio 303 Bacteriology Bio 313 Parasitology Bio 397 Seminar\* Bio 341 Immunology and Chm 241 Inorganic Quantitative Immunochemistry Bio 397 Seminar\* Mth 150 Elementary Statistics **Computer Science Elective** 3 Phy 105 Introductory Physics I Phy 106 Introductory Physics II 4 Social Science or 3 Social Science or Humanities Core Requirements Humanities Core Requirements 17-18 16-17

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**Eighth Semester** 

# Seventh Semester

MEDICAL TECHNOLOGY PROFESSIONAL STUDY YEAR

The 30 credits supplied by the twelve months' clinical training are divided into the following courses:

Bio 398 O-MT Clinical Microbiology	7
Bio 398 P-MT Clinical Chemistry	8
Bio 398 Q-MT Clinical Hematology/Coagulation	5
Bio 398 R-MT Clinical Immunohematology	4
Bio 398 S-MT Clinical Immunology/Serology	3
Bio 398 T-MT Clinical Seminar	3
	30

ester of Bio 397 is required but it must be taken in either the fifth or sixth semester



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# MUSIC

Assistant Professor Campbell, Chairman; Professors Emeritii Chapline, A. Liva; Associate Professors Garber, Santos; Assistant Professors Newson, Reiprich; Adjunct Professors Hannigan, Harrington, Heinze, Hrynkiw, Metzger, Nowak, Rinert, Sanderson, Teubner.

Total minimum number of credits required for a B.M. degree – number varies with program.

# **Purposes**

The Music Program at Wilkes College leads to a Bachelor of Music degree with a major in either applied performance studies or certification in music education (K-12).

- The purposes of the degree offering are to:
- 1. Give students a comprehensive exposure to all aspects of musical training relevant to their degree specialization;
- 2. Provide for contemporary careers which meet the needs of today's student in today's world;
- 3. Substantively prepare the student for graduate studies in music.

# **Objectives**

The Department of Music is a professional academic unit for students of superior ability who by virtue of their musical aptitudes and achievements and their general academic background are qualified to pursue work at Wilkes College.

Certain criteria are recognized as basic to any curriculum in music. There is a comprehensive program of critical and evaluative studies. A command of basic skills widely recognized as attributes of the musician is a major part of this curriculum. These skills have relevance to long-term personal and professional goals. Curricula have been designed to meet the competencybased and performance-oriented technical demands of the craft of music. A major portion of the study will be devoted to the development of the student's potential as a performing musician, with simultaneous attention given to one's specialization as a teacher, scholar or whatever. Men and women should be able to express themselves clearly in their language - both in speech and writing, and in the grammar of music. To this end, students should develop skills which demand evidence of critical investigation, analytical thought, and clarity of organization. They should be able to rehearse, perform, criticize, discuss, and analyze music which will provide them a basic command of components considered requisite to success in any part of the field. They should develop familiarity with their musical heritage through constant contact with varied types and styles of literature, and should use this knowledge to illuminate their interpretations. Likewise, all students should have contact with less familiar musical styles and means of

# **Recommended Course Sequence for Bachelor of Music — Applied Voice**

Degree completed with 127 semester credits.

First Semester		Second Semester	
Mus 000 Recital Attendance	0	Mus 000 Recital Attendance	
Mus 010 Functional Piano*	0	Mus 010 Functional Piano*	
Mus 100 Applied Performance	2	Mus 100 Applied Performance	
Mus 103 Comp. Musicianship I	2	Mus 104 Comp. Musicianship II	
Mus 105 Harmonic Foundations I	3	Mus 106 Harmonic Foundations II	
Mus 107 Analysis of Music I	3	Mus 108 Analysis of Music II	
Mus 121 or 131 Ensemble (Minor)**	0	Mus 121 or 131 Ensemble (Minor)**	
Mus 125 Ensemble (Major)	0	Mus 125 Ensemble (Major)	
Eng 101 Composition	3	Eng 102 Composition	
Foreign Language***	3	Foreign Language***	
PE 100 Activity	0	PE 100 Activity	
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\*Competency must be passed. \*\*Either one may be chosen. \*\*\*Fulfills one component of humanities core requirement

#### **Third Semester**

Mus 000 Recital Attendance 0 Mus 00 Mus 121 or 131 Ensemble (Minor)\* 0 Mus 12 Mus 1 0 Mus 125 Ensemble (Major) Mus 200 Applied Performance 2 Mus 2 Mus 203 Comp. Musicianship III 2 Mus 2 Mus<sub>2</sub> Mus 205 Harmonic Foundations III 3 3 Mus 2 Mus 207 Analysis of Music III 2 Mus 25 Mus 258 Vocal Methods Foreign Language\*\* 3 Foreign Language\*\* 0 PE 100 Activity PE 100 Activity 15

	Fourth Semester	
00	Recital Attendance	
21	or 131 Ensemble (Minor)*	
25	Ensemble (Major)	
00	Applied Performance	
04	Comp. Musicianship IV	
06	Harmonic Foundations IV	
08	Analysis of Music IV	
59	Diction	

\*Either may be chosen.

•	Equivalent of	6 non-music	electives.	not	additional	humanities	core
	Eddingerout of						

	Fifth Semester		Sixth Semester	
us 000	Recital Attendance	0	Mus 000 Recital Attendance	
us 125	Ensemble	.0	Mus 125 Ensemble	
us 128	Chamber Performance*	1	Mus 128 Chamber Performance*	
lus 260	Conducting I	2	Mus 261 Conducting II	
lus 300	Applied Performance	2	Mus 300 Applied Performance	
lus 305	Composition/Orchestration	2	Mus 301 Recital	
lus 307	Pedagogy (Vocal)	3	Mus 306 20th Century Theory	
sv 101	General Psychology	3	Core Requirements	
ore Rec	quirements	3	Core Requirements	
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Public performance required

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music-making, especially 20th century repertoire and practices.

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Seventh Semester		Eighth Semester
Mus 000 Recital Attendance	0	Mus 000 Recital Attendance
Mus 125 Ensemble	0	Mus 125 Ensemble
Mus 128 Chamber Performance*	1	Mus 400 Applied Performance
Mus 400 Applied Performance	2	Mus 401 Recital
Mus 407 Music Literature (Voice)	3	Mus 410 Chamber Literature
Free Electives	3	Free Electives
Core Requirements	6	Core Requirements

# \*Public performance required.

# **Recommended Course Sequence for** Bachelor of Music — All Applied Instruments **Except Voice and Keyboard**

15

Degree completed with 127 semester credits.

# **First Semester**

First Semester		Second Semester
Mus 000 Recital Attendance	0	Mus 000 Recital Attendance
Mus 010 Functional Piano	0	Mus 010 Functional Piano
Mus 100 Applied Performance	2	Mus 100 Applied Performance
Mus 103 Comp. Musicianship I	2	Mus 104 Comp. Musicianship II
Mus 105 Harmonic Foundations I	3	Mus 106 Harmonic Foundations II
Mus 107 Analysis of Music I	3	Mus 108 Analysis of Music II
Mus 121 or 131 Ensemble (Major)*	0	Mus 121 or 131 Ensemble (Major)
Mus 125 Ensemble (Minor)	0	Mus 125 Ensemble (Minor)
Eng 101 Composition	3	Eng 102 Composition
Core Requirements	3	Core Requirements
PE 100 Activity	0	PE 100 Activity
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\*Mus 131, if applied string or music education major (string concentration).

\*Mus 131, if applied string or music education major (string concentration).

# **Third Semester**

Mus 000 Recital Attendance
Mus 121 or 131 Ensemble (Major)*
Mus 125 Ensemble (Minor)
Mus 200 Applied Performance
Mus 203 Comp. Musicianship III
Mus 205 Harmonic Foundations III
Mus 207 Analysis of Music III
Aus 260 Conducting I
Psy 101 General Psychology
PE 100 Activity

# **Fourth Semester**

Mus 000 Recital Attendance
Mus 121 or 131 Ensemble (Major)*
Mus 125 Ensemble (Minor)
Mus 200 Applied Performance
Mus 204 Comp. Musicianship IV
Mus 206 Harmonic Foundations IV
Mus 208 Analysis of Music IV
Mus 261 or 262 Conducting II
Core Requirements
PE 100 Activity

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Fifth Semester		Sixth Semester
Mus 000 Recital Attendance	0	Mus 000 Recital Attendance
Mus 121 or 131 Ensemble*	0	Mus 121 or 131 Ensemble*
Mus 128 Chamber Performance**	1	Mus 128 Chamber Performance
Mus 263 or 264 Conducting III	2	Mus 300 Applied Performance
Mus 300 Applied Performance	2	Mus 301 Recital
Mus 305 Composition/Orchestration	2	Mus 306 20th Century Theory
Mus 311-315 Pedagogy	3	Mus 411 Music Literature (Orche
Core Requirements	6	Core Requirements
	16	

\*Mus 131, if applied string or music education major (string concentration). \*Public performance required.

# Seventh Semester

Mus 000 Recital Attendance	0	Mus
Mus 121 or 131 Ensemble*	0	Mus
Mus 128 Chamber Performance**	1	Mus
Mus 400 Applied Performance	2	Mus
Mus 407-415 Music Lit. (major idiom)	3	Mus (C
Free Electives***	6	Free
Core Requirements	3	Core

000 Recital Attendance 121 or 131 Ensemble\* 400 Applied Performance 401 Recital 407-415 Music Literature Chamber Literature) e Electives\*\*\* e Requirements

\*Mus 131, if applied string or music education major (string concentration). \*Public performance required.

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\*\*Six elective credits must be non-music.

# **Recommended Course Sequence for** Bachelor of Music - Applied Keyboard

# Degree completed with 127 semester credits.

First Semester		Second Semester	
00 Recital Attendance	0	Mus 000 Recital Attendance	0
00 Applied Performance	2	Mus 100 Applied Performance	2
03 Comp. Musicianship I	2	Mus 104 Comp. Musicianship II	2
05 Harmonic Foundations I	3	Mus 106 Harmonic Foundations II	3
07 Analysis of Music I	3	Mus 108 Analysis of Music II	3
21 or 131 Ensemble (Minor)*	0	Mus 121 or 131 Ensemble (Minor)*	1
25 Ensemble (Major)	0	Mus 125 Ensemble (Major)	1
01 Composition	3	Eng 102 Composition	3
Requirements	3	Core Requirements	3
0 Activity	0	PE 100 Activity	0
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\*Either one may be chosen

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Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble*	1
Mus 128 Chamber Performance**	1
Mus 300 Applied Performance	2
Mus 301 Recital	0
Mus 306 20th Century Theory	2
Mus 411 Music Literature (Orchestra)	3
Core Requirements	6
	15

**Eighth Semester** 



# **Third Semester**

Mus 000 Recital Attendance 0 Mus 121 or 131 Ensemble (Minor)\* 0 Mus 125 Ensemble (Major) 0 Mus 200 Applied Performance 2 Mus 203 Comp. Musicianship III 2 Mus 205 Harmonic Foundations III 3 Mus 207 Analysis of Music III 3 Mus 212 Keyboard Accompanying 2 Psy 101 General Psychology PE 100 Activity

\*Either one may be chosen.

# **Fifth Semester**

Mus 000	Recital Attendance		
Mus 125	Ensemble		
Mus 128	Chamber Performance*		
Mus 214	Accompanying Practicum		
Mus 260	Conducting I		
Mus 300	Applied Performance		
Mus 305	Composition & Orchestration		
Mus 309	Pedagogy (Piano)		
Core Requirements			

#### Seventh Semester

Mus 000	Recital Attendance				
Mus 125	Ensemble				
Mus 128	Chamber Performance				
Mus 400	Applied Performance				
Mus 409	Keyboard Literature				
Core Requirements					
Free Electives**					

\*Public performance required. \*Six elective credits must be non-music

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# Fourth Semester Mus 000 Recital Attendance Mus 121 or 131 Ensemble (Minor)\* Mus 125 Ensemble (Major) Mus 200 Applied Performance Mus 204 Comp. Musicianship IV Mus 206 Harmonic Foundations IV Mus 208 Analysis of Music IV

Mus 213 Accompanying Practicum

**Core Requirements** 

PE 100 Activity

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**Sixth Semester** Mus 000 Recital Attendance Mus 125 Ensemble Mus 128 Chamber Performance\* Mus 215 Accompanying Practicum Mus 261 or 262 Conducting II Mus 300 Applied Performance Mus 301 Recital Mus 306 20th Century Theory Core Requirements

# Eighth Semester

Mus 000 Recital Attendance Mus 125 Ensemble Mus 400 Applied Performance Mus 401 Recital Mus 410 Chamber Literature **Core Requirements** Free Electives\*\*

# The College of Arts and Sciences

**Recommended Course Sequence for Bachelor of Music — Music Education** 

**Vocal Track (with certification)** 

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Degree completed with 138 semester credits.

# **First Semester**

Aus 000 Recital Attendance	(
Aus 010 Functional Piano	(
Aus 100 Applied Performance (Major)	2
Aus 103 Comp. Musicianship I	2
Aus 105 Harmonic Foundations I	:
Aus 107 Analysis of Music I	:
Aus 121 or 131 Ensemble (Minor)*	(
Aus 125 Ensemble (Major)	(
ing 101 Composition	:
Core Requirements	:
E 100 Activity	(

\*Either one may be chosen.

# **Third Semester**

Mus 000 Recital Attendance
Mus 011 Functional Guitar*
Mus 121 or 131 Ensemble (Minor)**
Mus 125 Ensemble (Major)
Mus 200 Applied Performance (Major)
Mus 200 Applied Performance (Minor)
Mus 203 Comp. Musicianship III
Mus 205 Harmonic Foundations III
Mus 207 Analysis of Music III
Mus 258 Vocal Methods
Mus 260 Conducting I
Psy 101 General Psychology
PE 100 Activity

"If choral, elementary, or general music concentration \*Either one may be chosen.

# **Fourth Semester**

Second Semester

Mus 100 Applied Performance (Major)

Mus 104 Comp. Musicianship II

Mus 108 Analysis of Music II

Mus 106 Harmonic Foundations II

Mus 121 or 131 Ensemble (Minor)\*

Mus 125 Ensemble (Major) Eng 102 Composition

Core Requirements

PE 100 Activity

Mus 000 Recital Attendance

Mus 010 Functional Piano

Aus 000 Recital Attendance				
Aus 011 Functional Guitar*				
Aus 121 or 131 Ensemble (Minor)**				
Aus 125 Ensemble (Major)				
Aus 200 Applied Performance (Major)				
Aus 200 Applied Performance (Minor)				
Aus 204 Comp. Musicianship IV				
Aus 206 Harmonic Foundations IV				
Mus 208 Analysis of Music IV				
Mus 259 Voice Diction				
Core Requirements				
PE 100 Activity				

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# Fifth Semester

Mus 000 Recital Attendance 0 Mus 125 Ensemble (Major) Mus 250 Teaching of Elementary Music Mus 254-257 Instrumental Methods\* Mus 261 Conducting II Mus 300 Applied Performance (Major) Mus 300 Applied Performance (Minor) Ed 101 Practicum in Education Ed 201 Introduction to Education **Core Requirements** 

# \*Student elects two of four instrumental methods courses

# Seventh Semester

Mus 000 Recital Attendance 0 Mus 125 Ensemble (Major) 0 Mus 351 Teaching of Sec. Choral Music\*\* 2 Mus 352 Teaching of Sec. Instr. Music 2 Mus 400 Applied Performance (Major) 2 Ed 382 Intern Teaching 11

\*Student elects two of four instrumental methods courses \*\*Accelerated courses. \*\*\*Credited from seventh semester.

# **Recommended Course Sequence for Bachelor of Music — Music Education**

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# Instrumental Track (with certification)

# Degree completed with 138 semester credits.

First Semester	
Mus 000 Recital Attendance	0
Mus 010 Functional Piano	0
Mus 100 Applied Performance (Major)	2
Mus 103 Comp. Musicianship I	2
Mus 105 Harmonic Foundations I	3
Mus 107 Analysis of Music I	3
Mus 121 or 131 Ensemble (Major)*	0
Mus 125 Ensemble (Minor)	0
Eng 101 Composition	3
Core Requirements	3
PE 100 Activity	0
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	Second Semester
Mus 000	Recital Attendance
Mus 010	Functional Piano
Mus 100	Applied Performance (Majo
Mus 104	Comp. Musicianship II
Mus 106	Harmonic Foundations II
Mus 108	Analysis of Music
Mus 121	or 131 Ensemble (Major)*
Mus 125	Ensemble (Minor)
Eng 102	Composition
Core Req	uirements
PE 100 A	Activity

# The College of Arts and Sciences

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Mus 000 Recital

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Mus 261 or 262 Mus 300 Applier

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The College of Arts and Sciences

# **Eighth Semester**

/us 000	Recital Attendance			
/lus 125	Ensemble (Major)			
/us 254-	257 Instrumental Methods*			
/lus 400	Applied Performance (Major)			
/lus 401	Recital			
d 381 P	rofessional Practicum***			
Core Requirements				

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**Fifth Semester** 

Third Semester		Fourth Semester
000 Recital Attendance	0	Mus 000 Recital Attendance
011 Functional Guitar**	0	Mus 011 Functional Guitar**
121 or 131 Ensemble (Major)*	0	Mus 121 or 131 Ensemble (Major)*
125 Ensemble (Minor)	0	Mus 125 Ensemble (Minor)
200 Applied Performance (Major)	1	Mus 200 Applied Performance (Major)
200 Applied Performance (Minor)	1	Mus 200 Applied Performance (Minor)
203 Comp. Musicianship III	2	Mus 204 Comp. Musicianship IV
205 Harmonic Foundations III	3	Mus 206 Harmonic Foundations IV
207 Analysis of Music III	3	Mus 208 Analysis of Music IV
254 Instrumental Methods	2	Mus 255 Instrumental Methods
260 Conducting I	2	Core Requirements
101 General Psychology	3	PE 100 Activity
00 Activity	0	
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### **Sixth Semester**

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Attendance	0	Mus 000 Recital Attendance	0
Ensemble (Major)*	0	Mus 121 or 131 Ensemble (Major)*	1
ng of Elementary Music	2	Mus 257 Instrumental Methods	2
nental Methods	2	Mus 264 Adv. Conducting III	2
Conducting II	2	Mus 300 Applied Performance (Major)	1
Performance (Major)	1	Mus 300 Applied Performance (Minor)	1
Performance (Minor)	1	Ed 102 Practicum in Education	1
m in Education	1	Ed 202 Educational Psychology	3
tion to Education	3	Core Requirements	6
nts	6	en and Section H . French Horn	
	18		17

\*Mus 131, if applied string or music education major (string concentration). \*If elementary or general music concentration.

Seventh Semester

# Eighth Semester

Mus 000 Recital Attendance	0	Mus 000 Recital Attendance
Mus 121 or 131 Ensemble (Major)*	0	Mus 121 or 131 Ensemble (Major)*
Mus 351 Teaching of Sec. Choral Music**	2	Mus 252 Teaching of General Music
Mus 352 Teaching of Sec. Instr. Music**	2	Mus 400 Applied Performance (Major)
Mus 400 Applied Performance (Major)	2	Mus 401 Recital
Ed 382 Intern Teaching	11	Ed 381 Professional Practicum***
		Core Requirements
	_	

\*Mus 131, if applied string or music education major (string concentration).

\*\*Accelerated courses. \*\*\*Accredited from seventh semester.

Core electives must include 18 credits in humanities, including English 101 and 102; 6 in mathematics/sciences; 12 in social sciences, including Psychology 101.

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Mus 131, if applied string o	music education major	(string concentration
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#### The College of Arts and Sciences

One credit or two credits

No credit

No credit

**Three credits** 

Three credits

#### MUS 000. RECITAL ATTENDANCE No credit This course is required each semester for all music majors. Degree requirement for graduation.

# MUS 010. FUNCTIONAL PIANO

Class instruction in piano for music majors. Competency must be passed through examination before eligibility to upperclass status. Class meets two hours per week. Prerequisite: none

#### MUS 011. FUNCTIONAL GUITAR

Class instruction in guitar. Required for all choral, elementary, or general music specialists. Competency must be passed through examination before eligibility to upperclass status. Class meets two hours per week.

# MUS 100-400. APPLIED PERFORMANCE

Instruction offered in all keyboard, band and orchestral instruments, guitar and voice. Individual instruction. For non-music and music majors. Each area conducts a weekly master class for discussion and performance. Participation is required. Dro nt of in

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MUS 100. Fres	hman Level		
MUS 200. Sopl	nomore Level		
MUS 300. Juni	or Level		
MUS 400. Seni	or Level		
MUS 301. Juni	or Recital – No credit		
MUS 401. Seni	or Recital — No credit		
Section A	Flute	Section M	Violin
Section B	Clarinet	Section N	Viola
Section C	Oboe	Section O, U, V, W	Piano
Section D	Bassoon	Section P	Cello
Section F	Saxophone	Section Q	Bass
Section G	Trumpet	Section R	Percussion
Section H	French Horn	Section S, T	Voice
Section I	Baritone Horn	Section X	Organ
Section J	Trombone	Section Y	Guitar
Section L	Tuba	Section Z	Harp

#### MUS 101. INTRODUCTION TO MUSIC I

The materials of music and their interrelationships. Illustrations are derived from literature of all periods for the purpose of developing understanding and enjoyment through perceptive listening.

# MUS 102. INTRODUCTION TO MUSIC II

A survey of performance literature extending from the 17th century to the present. Directed listening of various idioms, forms, and styles characteristic of each period. The purpose is to stimulate critical judgment.

Prerequisite: Mus 101 or consent of instructor.

MUS 103-104, 203-204 COMPREHENSIVE MUSICIANSHIP I-IV Two credits A degree requirement. Intensive training in basic skills through ear-training, rhythmic, melodic and harmonic dictation, keyboard harmony, and aural analysis using modal, tonal and post-tonal compositions. Competency must be demonstrated before entrance into the junior class

Corequisite: To be taken in sequence with Harmonic Foundations and the Analysis of Music.

MUS 105-106, 205-206. HARMONIC FOUNDATIONS I-IV Three credits A degree requirement. A study of the functions, structures, and elements of music, modal

MUS 107-108, 207-208. ANALYSIS OF MUSIC I-IV Three credits A degree requirement. In-depth studies of the historical evolution of musical styles, antiquity to the present, through class lectures, analysis of the literature, and performance practices. Corequisite: To be taken in sequence with Comprehensive Musicianship and Harmonic Foundations.

#### MUS 111-112. CLASS PIANO I-II

The College of Arts and Sciences

Class instruction in piano. A two-semester sequence designed to provide non-music majors with a rudimentary study of piano performance. The classes will be divided into small sections according to proficiency level. Prerequisite: None.

# MUS 121. WIND ENSEMBLE

**One-half credit** Open to all members of the College community, by audition. A select organization of wind, brass, and percussion players that performs the best of the tradition Concert Band repertory, along with contemporary music for wind ensemble.

#### **One-half credit** MUS 125. CHORUS The Chorus offers students the opportunity to learn and perform a wide range of sacred and secular choral music. Open to all college students. Anyone desiring to sing in the chorus should consult with the director. Participation required of all music majors.

#### MUS 126. CAP AND BELL SINGERS **One-half** credit Membership is limited to a small group of selected singers who learn and perform solo and

ensemble pieces from the literature of opera, operetta, and musical theatre. **One-half credit** 

MUS 127. JAZZ ENSEMBLE Open to all members of the College community, by audition. The ensemble rehearses and presents frequent performances of literature encompassing a wide range of jazz styles and techniques.

# MUS 128. CHAMBER PERFORMANCE

Participation required of all applied performance majors for a minimum of three semesters. Students will study and publicly perform chamber literature appropriate to their instruments. Coaching and supervision by faculty members, as assigned.

Prerequisite: Mus 200, junior standing, or consent of instructor.

# MUS 131. COLLEGE ORCHESTRA

#### **One-half credit**

**One credit** 

Open to all members of the College community, by audition. The orchestra performs concerts throughout the year of chamber and symphonic literature. Participation is required of all string applied performance and string music education majors.

MUS 203-204. See Mus 103-104.

MUS 205-206. See Mus 105-106.

MUS 207-208. See Mus 107-108.

# MUS 212. KEYBOARD ACCOMPANYING

**Two credits** 

One credit

A study of the techniques concerned with solo, chamber, and group accompanying. Required of all keyboard applied performance majors. Prerequisite: Mus 101, 103-106.

# MUS 213-215. ACCOMPANYING PRACTICUM I-III

Practical accompanying experience, as assigned. Minimum time allotment is five hours per week of studio, chamber, or group accompanying, plus public performance accompanying when required. Prerequisite: Mus 212.

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**Two credits** 

through post-tonal styles. Written exercises and in-depth examination of musical examples. Corequisite: To be taken in sequence with Comprehensive Musicianship and the Analysis of Music.

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**Two credits** 

Two credits

# MUS 250. TEACHING OF ELEMENTARY MUSIC

A study of the newer practices in elementary music - Suzuki, Orff, Kodaly, and Dalcroze. Emphasis on the development of skills and techniques of physical movement, improvisation, solfeggio, tone-bar and mallet technique, recorder playing, folk dancing, composition of suiable materials for classroom use, arranging and adapting existing music for the Orff instrumentarium. A survey and evaluation of appropriate resource materials.

# MUS 252. TEACHING OF GENERAL MUSIC

Two credits A study of the contemporary approaches to teaching of general music in junior and senior high schools, such as creativeness and musical skill concepts through an extension of Orff, Kodaly, and others.

Prerequisite: Mus 250.

# MUS 254-258. MUSIC METHODS

An examination, discussion and practical application of the methodology necessary for the students to learn the techniques of group performance in the principal instrumental and vocal areas. This sequence of courses provides the student with a minimum competency in the group performance techniques of each instrumental idiom. This exposure reinforces the technical concentration beyond the student's major applied instrument. Required of all music education students.

- MUS 254. Woodwinds Methods
- MUS 255. Brass Methods MUS 256. String Methods
- MUS 257. Percussion Methods MUS 258. Vocal Methods
- Prerequisite: Mus 100, 103-106, sophomore standing, or consent of instructor.

# **MUS 259. VOICE DICTION**

**Two credits** An intensive study of the phonics of English, French, German, and Italian languages, based upon the International Phonetic Alphabet. Practical application is achieved through song literature selected from all historical periods. Required of all voice performance and choral music education majors.

# MUS 260-264. CONDUCTING I-III

Two credits Through class lectures, demonstrations and laboratory performances, students learn and practice the fundamental techniques of conducting. Score reading and preparation, basic conduct ing patterns, gestures, and rehearsal methodology will be studied. The emphasis will be on actual laboratory experience.

millioudenon to conduct	MUS 260	. Introd	luction	to	Conduc
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- MUS 261. Choral Conducting II
- MUS 262. Instrumental Conducting II
- MUS 263. Advanced Choral Conducting III MUS 264. Advanced Instrumental Conducting III

Prerequisite: Mus 103-108, sophomore standing, or consent of instructor.

# MUS 298. TOPICS

Three credits A study in topics of special interest not extensively treated in regularly offered courses.

# MUS 305. COMPOSITION AND ORCHESTRATION

**Two credits** Practical exercises in composition, orchestration, and arranging for instruments and voices in all combinations, including orchestral, wind, jazz, and chamber ensembles. Prerequisite: Mus 206 and 208.

# MUS 306. 20th CENTURY THEORY

A survey of twentieth-century theoretical systems emerging from post-romantic and impressionistic to post-serial and avant-garde styles of the contemporary times. Emphasis will be on compositional techniques. Works and writings of Schoenberg, Stravinsky, Hindemith, Babbitt, Sessions, Messaien, Boulez, and others will be examined. Listening and analysis. Prerequisite: Mus 204, 206, and 208, junior standing, or consent of instructor.

# MUS 307-316. MUSIC PEDAGOGY

The College of Arts and Sciences

#### Three credits

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**Two credits** 

A survey of the techniques and methodology concerned with individual teaching of each applied idiom. Required of all applied performance majors. Sections are offered in the following

- MUS 307. Voice Pedagogy
- MUS 309. Piano Pedagogy
- MUS 311. Woodwind Pedagogy
- MUS 313. Brass Pedagogy
- MUS 315. String Pedagogy
- MUS 316. Percussion Pedagogy

Prerequisite: Mus 200, junior standing, or consent of instructor.

MUS 351. TEACHING OF SECONDARY CHORAL MUSIC **Two credits** An examination of the administration and logistics of a secondary choral music program. A systematic development of teaching and rehearsal techniques, planning, and evaluation. Prerequisite: Mus 250, 252, 260 and 261, junior standing, or consent of instructor.

# MUS 352. TEACHING OF SECONDARY

# **INSTRUMENTAL MUSIC**

An examination of the administration and logistics of a secondary instrumental music program. A systematic development of teaching and rehearsal techniques, planning, and evaluation. Prerequisite: Mus 250, 252, 260 and 262, junior standing, or consent of instructor.

# MUS 395-396. INDEPENDENT RESEARCH

One to three credits Independent study and research for advanced students in music under the direction of a staff member. A research paper at a more substantial level beyond a term paper is required. Prerequisite: Approval of department chairman.

# MUS 397. SEMINAR

Presentation and discussion of selected topics

Prerequisite: Approval of department chairman.

# MUS 407-415. MUSIC LITERATURE

An examination of the literature, its style and technical problems, studied through performance coaching. These courses are designed to give the student a comprehensive knowledge of the literature for each respective major area of performance. They will provide a necessary foundation for performance practice requirements beyond the scope of only a lecture approach. Sections are offered in the following areas:

- MUS 407. Voice Literature
- MUS 408. Choral Literature
- MUS 409. Keyboard Literature
- MUS 410. Chamber Literature
- MUS 411. Orchestral Literature MUS 412. Woodwind Literature

MUS 415.

- MUS 413. Brass Literature
- MUS 414. String Literature

**Three credits** 

One to three credits

**Two credits** 

Percussion Litera

Prerequisite: Mus 205-208, senior standing in music, or consent of instructor.

The College of Arts and Sciences

# The College of Arts and Sciences

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# NURSING

Associate Professor Kolanowski, Chairperson; Associate Professors Druffner, Grabo, Telban; Assistant Professors Anselmi, Baker, Crowley, Gunderman, Kaminski, Merrigan, Notarianni, Russin, Saueraker, Schreiber, Sheer, Sherman, Steelman, Wolak, Zack; Adjunct Professor Babcock.

# Total minimum number of credits required for a B.S. degree – 129.

# **Philosophy and Curriculum**

The practice of professional nursing is a deliberative process of assessing, analyzing, planning, implementing, and evaluating care with clients which promotes and restores health and prevents illness. The baccalaureate program prepares a beginning, self-directed practitioner who is capable of initiating, implementing, and revising nursing care.

Professional nursing is based upon the integration of knowledge from the humanities, the physical and social sciences, nursing theories and research. The curriculum is based on the development of the individual throughout the life cycle.

The curriculum flows from the philosophy and covers a four-year academic period. It includes integrated nursing courses, electives and the general core requirements. Written agreements with the cooperating hospitals and agencies in Northeastern Pennsylvania ensure clinical facilities for the student's practice, which is concurrent with the classroom theory. Cooperating agencies which are used for student practice are listed in the Nursing Student Handbook. (STUDENTS ARE RESPONSIBLE FOR THEIR OWN TRANSPORTATION TO ASSIGNED CLINICAL AREAS.)

In addition, opportunities for learning are provided in the Nursing Learning Center, which is equipped with electronic study carrels and audio-visual instructional materials. A simulated hospital environment allows the student to practice the psychomotor skills necessary in nursing practice. A faculty member is available to assist the students.

# **Advanced Placement**

The Department of Nursing provides advanced credit examinations for applicants to enter the program at their level of competency. Previous education and/or practical experience which would involve repetitive learning justify advancing the applicant to higher level responsibilities.

Transfer and registered nurse students are required to have a personal interview with the department chairman or her designee to plan their program before they can be accepted into the Wilkes nursing program.

Registered nurse students and students who have completed a program of study and are eligible to sit for NCLEX-RN are required to complete N299 and successfully pass a comprehensive examination for validation of prior learning. When these two requirements are met, credit will be awarded for N202, N203 and N204. Specific Requirements for the Nursing Program

Students majoring in Nursing are required to have completed courses in English (4 units), Social Studies (three units), Mathematics (two units including Algebra), and Science (two units including Biology and Chemistry) during their secondary school program.

The student of nursing assumes all the financial obligations listed in the section on fees in this Bulletin. Additional expenses incurred in the nursing program are listed in the Nursing Student Handbook. A price list for the above items may be obtained at the Department of Nursing.

Students must obtain from the Department Secretary, early each May, the appropriate health examination forms to be completed and returned to the Department of Nursing by August 1st. Students should read the form carefully and be sure it is completed before returning it. Failure to have all examinations completed and documented by August 1st results in a \$25 late fee.

A student may be required to submit, at any time, to a health evaluation by the College physician, or nurse practitioner, if evident limitations interfere with the student's practice or learning.

In addition to fulfilling the academic requirements of the College, students majoring in nursing are required to successfully complete the comprehensive examination administered by the Department of Nursing before being eligible to graduate.

# License to Practice

Candidates for a license to practice in the health field are required to have "good moral character." The Pennsylvania State Board of Nursing takes into consideration, when deciding on the applications for registration and a license to practice under their jurisdiction, whether candidates have been included in any legal action or legal proceedings, either civil or criminal.

Any candidate for licensure who has been convicted of, pleaded guilty to, or entered a plea of nolo contendere to a felonious act prohibited by the act of April 17, 1972 (P.L. 233, No. 64), known as "The Controlled Substance, Drug, Device and Cosmetic Act" shall not sit for the licensing examination for a period of 10 years from the time of conviction and may need to satisfy other requirements as specified by the State Board of Nursing in Pennsylvania. Students should also note that a person convicted of any felonious act may be prohibited from licensure by the Board of Nursing at any time.

THE DEPARTMENT OF NURSING FACULTY RESERVES THE RIGHT TO REVISE THE NURSING MAJOR REQUIREMENTS AS DEEMED NECESSARY AT ANY TIME TO PREPARE STUDENTS FOR NEW AND EMERGING ROLES IN NURSING.

# The College of Arts and Sciences

**Fourth Semester** 

Sixth Semester

Nsg 202 Nursing Care of

Nsg 204 Nursing Care of

the Adult Client II

**Core Requirements** 

**Free Electives** 

Mth 150 or Core Requirements

the Young Client

**Core Requirements** 

Free Electives

PE 100 Activity

4

4

8

8

14

17

terms

# **Recommended Course Sequence for a Degree in Nursing**

First Semester Second Semester Bio 115 Human Anatomy and Bio 116 Human Anatomy and Physiology I Physiology II Chm 111 Intro. to Chemical Chm 130 Organic and Biological Reactions and Principles Chemistry Eng 101 Composition I 3 Eng 102 Composition II Psy 101 General Psychology 3 Psychology Elective Soc 101 Intro. to Sociology or 3 Soc 275 Sociology of Minorities Ant 101 Intro. to Anthropology Mth competency\* PE 100 Activity 0 PE 100 Activity 17

16

8

3

3

14

8

3

3

3

17

\*Math competency must be obtained during the freshman year. It is a prerequisite to the sophomore Nsg 201

Third Semester	
Bio 113 Microbiology	4
Nsg 200 Nutrition	3
Nsg 201 Introduction to Nursing	6
Core Requirements or Mth 150	3
PE 100 Activity	0

Fifth Semester
Nsg 203 Nursing Care of
the Adult Client
Core Requirements
Free Electives

# **Seventh Semester**

Nsg 301	Nursing Care of
the Old	er Client
Nsg 303	Contemporary Issues in
Nursing	or Free Electives
Nsg 305	Research in Nursing
Core Req	uirements

**Eighth Semester** Nsg 302 Senior Practicum Nsg 303 Contemporary Issues in Nursing or Free Electives Core Requirements Free Electives

# The College of Arts and Sciences

Corequisite: Nsg 201.

NSG 200. PRINCIPLES OF NORMAL NUTRITION **Three credits** An introduction of the basic science of human nutrition; principles of normal nutrition, meal planning, computation of diets, physiological, psychosocial, and social effects of food and its constituents; and some contemporary local, national, and international nutrition problems. Prerequisite: Chm 130.

# NSG 201. INTRODUCTION TO NURSING

Six credits

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This course introduces the concepts of client, basic human needs, accountability, development, health status, nursing process, nursing leadership, and research. Use of the nursing process is emphasized in meeting the basic health care needs of clients. Instruction in the Nursing Learning Center and selected clinical agencies constitutes the laboratory component. Hours weekly: 4 hours class, 1 hour discussion, 3 hours clinical practice. Placement: third semester. Fee: \$75. Prerequisite: Bio 116, Chm 130, Psy 102, Soc 275, Mth competency. Corequisite: Nsg 200, Bio 113.

# NSG 202. NURSING CARE OF THE YOUNG CLIENT

**Eight credits** Basic concepts introduced in Nsg 201 are utilized in assisting young families to meet their health needs during childbearing and childrearing years. Theory is concurrent with practice in select health care settings including community agencies. Hours weekly: 4 hours class, 12 hours clinical practice. Fee: \$75.

Prerequisite: Nsg 201, Nsg 200 and Bio 113.

# NSG 203. NURSING CARE OF THE ADULT CLIENT I

**Eight credits** The nursing process is utilized in assisting adults and their families to maintain optimum wellness and to resolve selected health problems. Nursing theory as related to the bio-psychosocial aspects of adult care is correlated with clinical practice in adult health care settings. Continuity of care is emphasized in the clinical component. Relevant findings from nursing research are incorporated. Hours weekly: 4 hours class, 12 hours clinical practice. Fee: \$75. Prerequisite: Nsg 202.

#### NSG 204. NURSING CARE OF THE ADULT CLIENT II **Eight credits** The nursing process is utilized in the care of the adult family member with increasingly complex bio-psychosocial problems. Acute care is viewed through related clinical experiences in medical, surgical, and psychiatric settings. Relevant findings from nursing research are incorporated. Hours weekly: 4 hours class, 12 hours clinical practice. Fee: \$75. Prerequisite: Nsg 203.

NSG 270. RECENT TRENDS IN CLINICAL NUTRITION **Three credits** This elective course is an introduction to diet therapy, with a discussion of the contemporary issues in clinical nutrition. Deals with the popular myths about nutrition and health and substantiates or refutes these claims with research evidence. Prerequisite: Nsg 200 or RN status.

# NSG 271. HEALTH CARE TERMINOLOGY

# **One credit** Word derivations, roots, prefixes, and suffixes are studied in an attempt to enable students to understand and communicate in terminology common to the health care professions. The emphasis will be on understanding the language in context rather than memorization of unrelated

#### NSG 272. CLINICAL APPLICATION OF PHARMACOLOGY **Three credits**

This elective course is designed to expand the student's knowledge of pharmacology. It includes the pharmocologic effect of drugs on body systems, as well as the interaction of multiple drugs

and environmental factors Prerequisite: Junior and Senior Nursing students and Registered Nurses.

### The College of Arts and Sciences

Six credits

**Eight credits** 

Three credits

**Three credits** 

Three credits

One to three credits

Variable credit

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# **OCCUPATIONAL THERAPY**

See Health Sciences Programs, page 145.

The College of Arts and Sciences

# PHILOSOPHY

Associate Professor Henson, Chairman; Professor Kay.

# Total minimum number of credits required for a B.A. degree — 121. Total minimum number of credits required for a minor -18.

The study of philosophy, whether by those who pursue a major in philosophy or by those who elect only a few courses of special interest, contributes to the development of the most basic skills and habits of mind which are characteristic of educated men and women: clarity of thought, precision in the analysis of conflicting claims, the power to render sound judgments based upon an appreciation of differing perspectives, and the ability to express and defend one's own views with force and imagination. Students who develop these skills through the study of philosophy are prepared for a variety of professional careers in law, medicine, teaching, and the ministry. In addition, they are the beneficiaries of the traditional liberal arts education as a preparation for numerous careers in government, business, and industry.

Since students may elect to pursue a double major in philosophy and a related area of interest, philosophy majors are invited to design their own majors in consultation with their advisors and with the approval of the department chairman. The typical program consists of 30 credit hours in philosophy, including either Phl 101 or Phl 201, and Phl 152.

The minor in philosophy consists of 18 credit hours, including Phl 101 (3 credit hours), Phl 152 (3 credit hours), and at least one course from Phl 201 through Phl 206 (3 credit hours).

# **Recommended Course Sequence for a Degree in Philosophy**

First Semester		Second Semester	
and 101 Composition I	3	Eng 102 Composition II	3
Core Requirements	12	Core Requirements	12
PE 100 Activity	0	PE 100 Activity	0
	15		15
Third Semester		Fourth Semester	
Phi 101 Introduction to Philosophy	3	PhI 152 Introduction to Logic	3
Core Requirements	9	Core Requirements	6
ree Electives	3	Free Electives	6
DE 100 Activity	0	PE 100 Activity	0

# NSG 299. NURSING FORUM I

This course is designed to facilitate the transition of Registered Nurse students from other educational routes into baccalaureate nursing education. The course explores the concepts of client basic human needs, development, accountability, health status, nursing process, nursing leadership and research. Use of the nursing process is emphasized in assisting a variety of clients to maintain optimum level wellness. Nursing theory as related to the bio-psychosocial aspects of client health is correlated with clinical practice in a variety of health care settings. Prerequisite: RN status or NCLEX eligibility.

NSG 301. NURSING CARE OF THE OLDER CLIENT **Eight credits** The nursing process is utilized in the care of the older adult family member. Content reflects the major changes accompanying the aging process, as well as the interactive effects of multiple pathological conditions. Hours weekly: 4 hours class, 12 hours clinical practice. Fee: \$75.

# Prerequisite: Nsg 204.

# NSG 302. SENIOR PRACTICUM

Explores current nursing theories and models of practice, and develops the concepts of leadership, management, and organizational change. The student synthesizes knowledge from all previous nursing and supportive courses in an area of clinical practice consistent with career goals and contingent upon availability of clinical placement and approval of the Level Coordnator. Hours weekly: 2 hours class, 18 hours clinical practice in a variety of settings. Fee: \$75. Prerequisite: Nsg 301 and Nsg 305.

# NSG 303. CONTEMPORARY ISSUES IN NURSING

Explores current issues and trends in nursing and health care within a seminar format. Hours weekly: 3 hours class.

Prerequisite: Nsg 204

# NSG 305. INTRODUCTION TO RESEARCH

This course is a foundation for the study of nursing problems. It will be useful in planning and implementing small research studies, critically reading research reports, and applying research findings to practice.

Prerequisite: Nsg 204, Mth 150.

#### NSG 307. PHYSICAL ASSESSMENT

This elective course is designed to facilitate the integration of physical assessment skills as an essential element of the nursing process. The components of physical assessment, including the health history and physical examination, are organized to allow the student to proceed from an assessment of the overall functions of a client to the more specific functions of each body system. The evaluation of the health status of individuals is expanded to include more complex assessment skills as well as modifications for the elderly and pediatric client.

# Prerequisite: Junior and Senior Nursing majors or RN students

# NSG 395-396. INDEPENDENT STUDY

Independent study for advanced students in nursing under the direction of a staff member. Prerequisite: By arrangement with an instructor. Candidates for independent study must have a minimum cumulative and nursing G.P.A. of 3.00 and be of senior class standing.

NSG 198/298/398. TOPICS IN NURSING

A study in topics of special interest that are not exclusively treated in regularly offered courses.



# The College of Arts and Sciences

Three credits

Three credits

**Three credits** 

Three credits

Fifth Semest	ter	Sixth Seme	ster
Major Electives	6	Major Electives	6
Free Electives	9	Free Electives	9
	15		15
Seventh Seme	ster	Eighth Seme	ster
Major Electives	6	Major Electives	6
Free Electives	9	Free Electives	9
	15		15

# PHL 101. INTRODUCTION TO PHILOSOPHY

An introduction to the major figures, problems, and concerns of Western philosophical thought. Students in this course typically examine a variety of philosophical questions and problems, such as the existence of God; human nature and the good life; fatalism, freedom, and responsibility; skepticism and the nature of knowledge; and theories of reality.

# PHL 152. INTRODUCTION TO LOGIC

An introduction to the principles of deductive reasoning. The recognition of fallacies; general rules of inference; distinguishing good and bad arguments; the use and abuse of language; and the application of logical principles to related disciplines.

# PHL 201. ORIGINS OF WESTERN THOUGHT: SOCRATES TO AUGUSTINE

Three credits The development of Western philosophical thought from its beginnings in the Greek world to Christian thought in the Middle Ages. Special attention will be focused upon the writings of the Pre-Socratics, Plato, Aristotle, Plotinus, Aquinas, Duns Scotus, William of Ockham, and Augustine.

# PHL 202. MODERN PHILOSOPHY: DESCARTES TO KANT

Western philosophical thought from the Renaissance to the end of the eighteenth century, including the writings of Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant. Prerequisite: Phl 101 or 201.

# PHL 203. NINETEENTH CENTURY PHILOSOPHY

**Three credits** An examination of the writings of the major English and European philosophers in the nineteenth century, including the works of Fichte, Schopenhauer, Mill, Kierkegaard, Nietzsche, McTaggart, Bradley, and Marx. Prerequisite: Phl 101 or 201.

# PHL 204. TWENTIETH CENTURY PHILOSOPHY

Three credits Major figures and movements in contemporary philosophical thought, with special emphasis upon English philosophy since 1900. Major philosophers to be studied include Moore, Russell, Ayer, Wittgenstein, Bergson, Husserl, Heidegger, and Sartre. Prerequisite: Phl 101 or 201.

# PHL 206. AMERICAN PHILOSOPHY

A survey of the distinctively American contributions to philosophical thought, from Jonathan Edwards to the present. Included in the course is an examination of major influences in American thought, such as realism, idealism, and pragmatism, as well as a study of major figures such as Santayana, Royce, Peirce, James, Dewey, Whitehead, Hocking, Quine, and others. Prerequisite: Phl 101 or 201.

#### The College of Arts and Sciences

#### PHL 210. ETHICS

**Three credits** A study of the values, ideals, and ideologies which comprise the foundations of human conduct. Several major ethical theories will be examined, e.g., egoism, altruism, and utilitarian-ism, along with a number of ethical problems such as moral skepticism, relativism, the concept of authority, and the role of facts in ethical theory. The application of ethical theory to specific human problems such as racism and sexism, homosexuality, political corruption, punishment, violence, and drug abuse is also examined. Prerequisite: Phl 101 or 201.

#### PHL 214. MEDICAL ETHICS

**Three credits** 

**Three credits** 

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An inquiry into the ethical issues which underlie the practice of medicine. Classical ethical theories such as those of Plato, Hume, Kant, and Mill are examined in a context involving such medical problems as: patients' rights, genetic counseling, abortion, human experimentation, elective death, birth defects, and the limits of lifesaving therapy. Prerequisite: Phl 101 or 201.

#### PHL 216. PHILOSOPHY OF ART

An examination of the nature of artistic creativity, imagination, perception, and expression as such notions arise in the literary arts of fiction and poetry, the visual arts of painting, photography, motion pictures, and television, and the performing arts of drama, music, and dance. Emphasis will also be placed upon the development of at least one major theory of art, such as that of Plato, Aristotle, Kant, Dewey, or Collingwood. Prerequisite: Phl 101 or 201.

# PHL 220. PHILOSOPHY OF RELIGION

**Three credits** 

An examination of various problems that arise when religion is made the object of philosophical reflection. The nature and forms of religious experience; the relationship between faith and reason; arguments for the existence of God; the problem of evil; arguments for immortality; the concepts of worship and miracle; the nature of religious language; and the possibility of religious knowledge.

Prerequisite: Phl 101 or 201.

# PHL 225. LITERATURE OF THE OLD TESTAMENT

**Three credits** The course aims at giving students an insight into the books of the Old Testament and the range and depth of the religious heritage received from Israel. The biblical message is studied in its dynamic context of the culture, geography, and history of the ancient Near East. Prerequisite: Phl 101 or 201.

#### PHL 226. LITERATURE OF THE NEW TESTAMENT

**Three credits** An examination of the form and content of the books of the New Testament as literary products and as records of the faith that gave rise to the Christian Church. The teachings of Jesus and the Apostolic Church are studied against the background of their own time and examined in their

significance for contemporary life. Prerequisite: Phl 101 or 201.

# PHL 228. CONTEMPORARY RELIGIOUS THOUGHT

**Three credits** 

A study of the development of religious thought from neoorthodoxy to the "Death of God" theologies. The impact of scientism, linguistic philosophies, and ecumenism on modern theologizing; the thinkers whose views will be considered include Barth, Brunner, the Niebuhrs, Bultmann, Farmer, Weiman, Maritain, Buber, Sartre, Heidegger, Tillich, Rahner, Rubenstein, Altizer, Cox, Brown, and Weigel. Prerequisite: Phl 101 or 201.



# The College of Arts and Sciences

Three credits

# The College of Arts and Sciences

PHL 352. SYMBOLIC LOGIC

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**Three credits** 

# PHL 230. SOCIAL AND POLITICAL PHILOSOPHY

Social and political institutions as seen by such classical critics as Plato, Aristotle, Hobbes, Hume, Burke, Bentham, and others. Special attention to analysis of the problems of censorship, relation of church and state, prejudice, aims and methods of democratic institutions, Prerequisite: Phl 101 or 201.

# PHL 232. PHILOSOPHY OF HISTORY

A study of the various interpretations of history. The views of Augustine, Vico, Rousseau, Kant, Hegel, Marx, Comte, Spengler, Schweitzer, Toynbee, Sorokin, Niebuhr, and others on the meaning of historical events.

# Prerequisite: Phl 101 or 201.

# PHL 240. PROBLEMS IN METAPHYSICS

A critical examination of one or more problems of ontology and cosmology as dealt with by both classical and contemporary metaphysicians. Problems to be considered may include the concepts of substance, existence, causality, God, space and time, the problem of change and motion, free will and causal determinism, fatalism, the relationship between mind and body. and the nature of universals.

Prerequisite: Phl 101 or 201.

#### PHL 298. TOPICS

The study of a topic of special interest not extensively treated in other courses. Possible topics include philosophy of law; philosophy of biology; technology and value; philosophy of death; philosophy of literature; etc.

Prerequisite: Phl 101 or 201.

# PHL 301. STUDIES IN GREEK PHILOSOPHY

A critical examination of a single major philosopher or text in the period of classical Great philosophy. Variable content: this course may be repeated for credit. Normally preceded by Phil 201.

Prerequisite: Phl 101 or 201.

# PHL 302. STUDIES IN MODERN PHILOSOPHY

A critical examination of a single major philosopher or text in the modern period from Descartes to Kant. Variable content: this course may be repeated for credit. Normally preceded by Phl 202.

Prerequisite: Phl 101 or 201.

# PHL 310. STUDIES IN MORAL PHILOSOPHY

A critical inquiry into the development of a rational ethical theory. The ethics of Plato, Aristotle, Hume, Kant, and Mill are examined along with the analytical, existential, and normative extensions of these theories in contemporary ethical thinking. The role which such important ethical concepts as virtue, justice, responsibility, and happiness play in structuring a sensible moral philosophy is examined in depth. Normally preceded by Phl 210. Prerequisite: Phl 101 or 201.

# PHL 320. ADVANCED PHILOSOPHY OF RELIGION

An intensive examination of a major problem or figure in the philosophy of religion. Variable content: course may be repeated for credit. Normally preceded by Phl 220. Prerequisite: Phl 101 or 201.

# PHL 350. PHILOSOPHY OF SCIENCE

A critical examination of the nature of science; meaning, verifiability, and experimentation in the sciences; the principle of verifiability in physics and psychology; induction and the various interpretations of probability; causality and laws of nature; and the nature of explanation and justification.

Prerequisite: Phl 101 or 201.

Prerequisite: Phl 152 or Mth 202 or permission of instructor. PHL 360. EXISTENTIALISM **Three credits** A close examination of the literature of the major existentialist writers, both theistic and atheis-

A review of the propositional calculus and a thorough examination of the predicate calculus, including identity, definite descriptions, and relations. Emphasis will be placed upon the con-cept of a formal system and axiomatization, as well as properties of deductive systems such as consistency, completeness, independence of axioms, and other formal properties.

tic, together with a consideration of its impact upon philosophy, religion, psychology, and art. Special attention will be given to the thought of Kierkegaard, Nietzsche, Jaspers, Heidegger, Marcel, and Sartre.

Prerequisite: Phi 101 or 201

# PHL 395-396. INDEPENDENT RESEARCH

One to three credits Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. Prerequisite: Approval of department chairman is required.

#### PHL 397. SEMINAR

# One to three credits

Presentations and discussions of selected topics. Prerequisite: Approval of department chairman is required.





# The College of Arts and Sciences

#### The College of Arts and Sciences

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# PHYSICAL EDUCATION AND HEALTH

Assistant Professor Wingert, Chairman; Professor Reese; Associate Professors Saracino, Schmidt; Assistant Professor Meyers; Coaches Kest, Rainey, Unsworth; Trainer, Aed.

Physical education is an integrated part of the total educational program at Wilkes College. It is designed to help the student understand and practice knowledge of body movement. The aim of the Physical Education Program is to provide each student with opportunities to participate in physical activities that will satisfy his needs, interests, and physical fitness goals.

Students are required to complete four semesters of Physical Education, each semester being a different learning experience. It is recommended that students fulfill their four semesters of Physical Education in the first two years of their program. The only exceptions to this requirement are made to veterans of the military service and to students who have medical excuses which are submitted to and verified by the College Infirmary and the Registrar. Veterans should submit a copy of their honorable discharge from the service to the Registrar's Office.

Students enrolled in AFROTC may substitute AS 101-102-201-212 for the PE 100 series.

PE 101. INTERCOLLEGIATE ATHLETICS No credit This course is limited to students participating in intercollegiate athletics, cheerleaders, majorettes, and strutters during their sport season. This course may be repeated PE 115. BODY MECHANICS AND WEIGHT TRAINING - WOMEN No credit Individual weight training programs are developed. Body form and fitness levels are evaluated This course provides instruction in the basic techniques of free weights.

PE 116. WEIGHT TRAINING No credit Individual weight training programs are developed. This course provides instruction in techniques of free weights.

PE 120. BEGINNING BOWLING No credit Designed to teach the basic techniques of bowling; grip, stance, footwork, delivery, and ap proach to foul line, release and follow through, rules and scorekeeping procedures. PE 121. ADVANCED BOWLING No credit

Designed for students who have developed fundamental bowling skills and now want to de velop style of delivery, methods of aiming, rules, and team concepts. Prerequisite: PE 120 or approval of instructor.

# PE 125. BEGINNING BADMINTON

This course provides instruction in the fundamental skills of badminton with emphasis on play. rules, and strategy.

# PE 126. ADVANCED BADMINTON

Designed for students who have developed the fundamental skills of the sport. The student should be able to apply the rules and basic strategy to tournament competition. Prerequisite: PE 125 or approval of instructor.

PE 130. AEROBIC DANCE No credit This course is designed to develop cardiorespiratory conditioning, muscle tone, and other elements of fitness through dance and exercise movements performed to music.

PE 131. MODERN DANCE No credit This course is a study of contemporary dance technique and composition. Students will have experience in basic or axial and locomotive movement and explore movement in space, time, and energy-release.

PE 132. FOLK & SOCIAL DANCE No credit This course presents a variety of folk and social dances enjoyed by people of all cultures. Preservation of cultural heritage and social interaction are provided through participation.

PE 135. AEROBIC FITNESS No credit Group program for students to achieve aerobic fitness.

PE 136. FITNESS ACTIVITIES - JOGGING No credit This course is designed to develop a self-styled jogging program. Emphasis on warm-up, individual jogging, and cool-down.

PE 140. BEGINNING GOLF No credit An appreciation of golf as a lifetime activity is stressed. Instruction of swing mechanics, rules, terminology, and safety practices taught. Weather permitting, outdoor practice of skills will be provided.

PE 145. INDOOR HOCKEY No credit Designed to teach fundamental skills of indoor hockey and to apply these skills in game situations

PE 146. INDOOR SOCCER No credit Designed to teach the fundamental skills of soccer and to apply these skills in game situations.

PE 147. TEAM HANDBALL - MEN No credit Consists of six field players and a goalie. An aggressive game of throwing, jumping, running, offensive, and defensive moves that develop athletic skills and improve physical fitness.

PE 148. VOLLEYBALL & BASKETBALL - MEN No credit Elementary skills, terminology, mechanics of offensive and defensive movement, strategy, and rules are developed within team games.

PE 150. LEISURE-TIME GAMES No credit This course offers a variety of games for leisure-time enjoyment.

PE 155. TEAM SPORTS No credit Designed for group participation in team sports activities. Such activities as volleyball, basketball, touch football, or other sports activities may be included.

#### PE 160. RACQUETBALL No credit This course teaches fundamental skills of racquetball, strategy, and rules of play. Fee for

#### PE 165. SWIM INSTRUCTION

course.

No credit

No credit

Water skills, safety, self-reliance, precautions are developed along with swimming stroke in-

No credit



# The College of Arts and Sciences

No credit

Two credits

Three credits

Three credits

Variable credit

# The School of Engineering and Physical Sciences

See Health Sciences Programs, page 145.

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# PE 166. ADVANCED LIFE SAVING

This course will be taught under the American Red Cross guidelines for lifeguard certification. All lifesaving water skills will be taught and all written and textbook work will be completed in the course.

Those completing and passing the course will not only receive PE credit but lifeguard certification as well. If students prefer only to learn lifesaving skills, they will not have to do the testing for certification. Also through this course the Advanced Life Saving Renewal Program is available.

# PE 167. RECREATIONAL SWIM

This course gives the skilled swimmers the opportunity to swim. Lap swimming and recreational water games are included. Fitness through swimming will be stressed.

#### PE 170. SKIING

This course is designed to give students the opportunity to learn to ski and/or improve their skiing skills. Ski school lessons will be available for all levels of skiing ability. Fee for course

#### PE 175. TENNIS INSTRUCTION

Designed to teach fundamental skills, terminology, mechanics of offensive and defensive movements, strategy, and rules of play.

# PE 180. BEGINNING VOLLEYBALL

This course teaches the basic skills of volleyball. Serves, sets, bump passes, spikes, and rules of play are emphasized.

#### PE 181. ADVANCED VOLLEYBALL

This course is designed for students who have developed fundamental skills for power volleyball. Offensive and defensive team play are stressed.

Prerequisite: PE 180 or approval of instructor.

# PE 198. TOPICS IN PHYSICAL EDUCATION

These courses are designed to meet specific needs of groups of students. The courses will be offered on a trial basis in order to determine demand and value of introducing them as part of the college curriculum.

# PE 210. CONTEMPORARY HEALTH PROBLEMS

A study of present-day health problems. The course undertakes to help students enjoy maximum health and happiness through a better understanding of themselves, their relationships with other people, and their functioning within today's environment. Topics covered: chemical use and abuse, consumer health, diet and weight control, diseases, emotional and mental disorders, exercise and physical fitness, human sexuality, etc. Two hours each week.

#### PE 310. TREATING ATHLETIC INJURIES

A course designed to provide experiences in application of various methods in treatment of athletic injuries. A study of preventive measures and medical management of athletic injuries. Experience in use of exercise techniques and physical modalities.

#### PE 315. EMERGENCY CARE TECHNIQUES

A course designed to provide experiences (both practical and theoretical) in the application of advanced first aid and emergency care techniques. The successful completion of the course will enable the student to render such care.

Prerequisite: student must possess a current Cardiopulmonary Resuscitation (CPR) Card.

#### PE 298/398. TOPICS IN HEALTH AND/OR PHYSICAL EDUCATION

A study in topics of special interest not extensively treated in regularly offered courses. This course will be offered from time to time when interest and demand justify it.

# PHYSICS

PHYSICAL THERAPY

Professor Bellas, Chairman; Professor Emeritus Donahoe; Professors Hostler, Orehotsky; Associate Professor Emeritus Bailey; Associate Professors Maxwell, Placek; Assistant Professors Kucirka, Loncoski.

Total minimum number of credits required for a B.S. degree — 131. Total minimum number of credits required for a B.A. degree — 127. Total minimum number of credits required for a B.S. degree in Medical & Health Physics — 132.

The Department of Physics takes seriously the responsibility of teaching on the undergraduate level. In order to prepare students to move on to graduate level studies or to enter the professional job market, the department offers three distinct curriculum tracks. These include the Bachelor of Science Degree in Physics, the Bachelor of Science Degree in Medical and Health Physics, and the Bachelor of Arts Degree in Physics.

The Bachelor of Science Degree in Physics is a modern program which prepares the student for graduate study in any of the scientific disciplines. The Bachelor of Science Degree in Medical and Health Physics is designed to prepare students for those areas of the medical and health sciences which employ the concepts of the physical sciences.

The Bachelor of Arts Degree in Physics is primarily designed for those students interested in teaching physics on the high school level. However, because of the greater flexibility in the Bachelor of Arts Program it is an excellent opportunity for electing additional courses from other fields such as chemistry, biology, engineering, and earth and environmental science. Consequently, this provides excellent background for advanced study in medicine, dentistry, and other related fields.

A minor can be obtained by students with demonstrated expertise in Physics as determined by the Physics faculty. The minimum requirement can be met by students who have completed 18 Physics credits at the 200-level or above, but only those course credits for which a student has achieved a grade of 2.0 or higher will count toward this minimum.



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# Recommended Course Sequence for a B.A. Degree in Physics

First Semester		Second Semester	
Eng 101 Composition I Mth 111 Calculus I or 105 Intro. to Calculus I Core Requirements PE 100 Activity	3 4 9-10 0 16-17	Eng 102 Composition II Mth 112 Calculus II or 106 Intro. to Calculus II Core Requirements PE 100 Activity	3 4 9-10 0 16-17
Third Semester		all berg to residue at even in the second state of the second stat	
Chm 115 Elements & Companyods	4	Fourth Semester	100
Mth 211 Differential Equations or Science Elective	4	Mth 212 Multivariable Calculus or Science Elective	4
Phy 201 General Physics I	4	Phy 202 General Physics II	4
Core Requirements	3-6	Core Requirements	3.6
PE 100 Activity	0	PE 100 Activity	0
	15-18		15-18
Fifth Semester		Sivth Semester	

3

3

3

7-9

3

12

16

\*Free Electives — A minimum of 12 credits must be chosen from physics courses numbered 200 or above

# Phy 203 General Physics III Phy 221 Elect. Instrumentation Core Requirements Free Electives\*

 1-5
16-18

# Seventh Semester Phy 391 Senior Projects I Core Requirements Free Electives\*

Eighth Semester Phy 392 Senior Projects II Free Electives\* 7.9

16-18

**Computer Science Elective** 

Statistics Elective

Core Requirements

Free Electives\*

#### ne ocnor of Engineering and Thysical Sciences

Recommended Course Sequence for a B.S. Degree in Physics

#### **First Semester** Second Semester Eng 102 Composition II Composition I 3 Mth 112 Calculus II Calculus I 4 Phy 202 General Physics II **General Physics I** 4 **Computer Science Elective** uirements 6 0 **Core Requirements** Activity PE 100 Activity 17 **Fourth Semester Third Semester** Elements & Compounds Chm 116 Chemical Reaction 4 Mth 212 Multivariable Calculus Differential Equations 4 Statics & Dynamics 3 Phy 203 General Physics III Phy 340 Thermodynamics Elect. Instrumentation 3 or 310 Mechanics 3 uirements Activity 0 **Core Requirements** PE 100 Activity 17 **Fifth Semester** Sixth Semester Math. in Phys. & Sciences Phy 302 Math. in Phys. & Sciences 3 Phy 310 Mechanics Optics 4 E&MI 3 or 340 Thermodynamics Phy 333 E & M Lab I Phy 332 E & M II 1 Phy 334 E & M Lab II 6 Core Requirements Phy 380 Nuclear Physics 17 or 361 Atomic Physics Phy 382 Nuclear Physics Lab or 363 Atomic Physics Lab Core Requirements Seventh Semester **Eighth Semester** Phy 351 Quantum Mechanics Phy 361 Atomic Physics 3 or 380 Nuclear Physics Phy 391 Senior Projects I 1 Phy 363 Atomic Physics Lab Science Elective(s) 4-6 4 Core Requirements 6 or 382 Nuclear Physics Lab Phy 392 Senior Projects II 14 Science Electives **Core Requirements**

 $\label{eq:constraint} Core Requirements - Computer science courses may be substituted for the last two semesters of language with the approval of the Academic Standards Committee.$ 

Source Electives — May be chosen from any mathematics, science, or engineering courses numbered 200 or above. Sudence contemplating graduate studies should choose 6 of the credits in advanced mathematics.



The School of Engineering and Physical Sciences

# **Recommended Course Sequence for a B.S. Degree in Medical and Health Physics**

Eng 101 Composition I	3	Eng 102
Mth 111 Calculus I	1	Mth 112
Phy 201 General Physics I	4	Dhy 202
Coro Poquiromento	4	Priy 202
Core Requirements	0	Computer
PE 100 Activity	0	Core Req
		PE 100 A
	17	
Third Semester		
Chm 115 Elements & Compounds	4	Chm 116
Mth 211 Differential Equations	4	Egr 250 E
Phy 221 Elect. Instrumentation	3	Phy 203
Core Requirements	6	Core Requ
PE 100 Activity	0	PE 100 A
	17	

4

4

4

3

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17

#### **Fifth Semester**

**First Semester** 

Bio 115 Human Anat. & Phys.	
Chm 231 Organic Chemistry I	
Phy 323 X-Ray Diffraction	
or Science Elective	
Core Requirements	

# **Seventh Semester**

Phy 323	X-Ray Diffraction	3
or Scie	ence Elective	
Phy 325	Med. & Health Phys. I	3
Phy 330	Optics	4
Phy 390	Practicum	3
Phy 391	Senior Projects I	520 1
Core Requirements		3

Second Semester Composition II Calculus II General Physics II Science Elective uirements Activity

# **Fourth Semester**

4

4

18

**Chemical Reaction** Biomedical Engineering General Physics III uirements ctivity

# Sixth Semester

Bio 116 Human Anat. & Phys. Chm 232 Organic Chemistry II Phy 380 Nuclear Physics or 361 Atomic Physics Phy 382 Nuclear Physics Lab or 363 Atomic Physics Lab Science Elective **Core Requirements** 

# **Eighth Semester** Phy 326 Med. & Health Phys. II Phy 361 Atomic Physics

or 380 Nuclear Physics Phy 363 Atomic Physics Lab or 382 Nuclear Physics Lab Phy 390 Practicum Phy 392 Senior Projects II **Core Requirements** 

The School of Engineering and Physical Sciences

# PHY 101-102. PHYSICAL SCIENCES

Three credits each A course for the non-science student to enable an understanding and appreciation of the universe in which he/she lives. The methods, concepts, and vocabulary of physics and the applications of some of the outstanding principles to the needs of the individual and the community form the focus of the courses. Also, the manner in which the continually expanding frontiers of science affect our lives in the present and how they may affect our lives in the future are addressed in both courses. The class meets for three periods per week: these include two periods of lecture, and one recitation/laboratory experience provided.

Prerequisite: No previous background in science or mathematics is required for this course.

# PHY 105-106. INTRODUCTORY PHYSICS

Four credits each

Four credits

Three credits

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An introductory course designed to promote an understanding of the more important fundamental laws & methods of the major areas of physics. Laboratory work to emphasize basic principles and to acquaint the student with measuring instruments and their use, as well as the interpretation of experimental data. First semester: mechanics, properties of matter, heat, and thermodynamics. Second semester: sound, light and optics, electricity and magnetism, modem concepts. Demonstration-lecture two hours a week, recitation one hour a week, and one laboratory three hours a week. Fee: \$40 per semester.

# PHY 201. GENERAL PHYSICS I

#### A thorough grounding in the concepts, principles, and laws of mechanics, thermodynamics, and wave motion. Instruction by demonstration-lecture, recitation, problem solving, and experimental work. Demonstration-lecture two hours a week, recitation one hour a week, and laboratory three hours a week. Fee: \$40. Corequisite: Mth 111.

# PHY 202. GENERAL PHYSICS II

Four credits Electricity and magnetism, optics and light. Demonstration-lecture two hours a week, recitation one hour a week, and laboratory three hours a week. Fee: \$40. Prerequisite: Phy 201 or Phy 105. Corequisite: Mth 112.

# PHY 203. GENERAL PHYSICS III

Modern physics including the experimental basis, concepts, and principles of atomic and nuclear physics. Demonstration-lecture three hours a week. Prerequisite: Phy 202.

# PHY 210. INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING

**Three credits** Application of materials properties to engineering design. Introduction to atomic arrangements, crystal structures, imperfection, phase diagrams, and structure-property relations. Fundamentals of iron, steel, and non-ferrous materials. The behavior of materials in environmental conditions. Three hours lecture a week. (same as MaE 210) Prerequisiter Phy 201, 202.

# PHY 211. STATICS & DYNAMICS

#### **Three credits**

**Three credits** 

This course develops the principles of Newtonian mechanics with applications to the equilibrium of rigid structures as well as to the stable motions of mechanisms. Topics include velocities and accelerations in orthogonal coordinate systems; internal and external forces; inertia forces and the effective potential energy; centroids and moments of inertia; kinetics and kinematics of particles and rigid bodies. (same as Egr 231) Prerequisite: Phy 201 or Phy 105, Mth 112.

# PHY 213. FLUID MECHANICS

Thermodynamics and dynamic principles applied to fluid behavior, ideal, viscous, and comsite: Egr 231 or Phy 211.

Core Requirements - Computer science courses may be substituted for the last two semesters of language with the Core heroinements — Computer submice courses may be substituted for the last two seriesters of language and approval of the Academic Standards Committee. Science Electives — May be chosen from any mathematics, science, or engineering courses numbered 200 orabon pressible fluids under internal and external flow conditions. Students contemplating graduate studies should choose 6 of the credits in advanced mathematics


## The School of Engineering and Physical Sciences

Three credits

Four credits

Four credits

Three credits

Three credits

## The School of Engineering and Physical Sciences

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## PHY 221. ELECTRONIC INSTRUMENTATION

An introduction to the nature and use of standard and specialized electronic instruments. The study of analog and digital circuits with emphasis on the useful functions which can be performed. A two-hour class and one three-hour laboratory a week. Fee: \$35. Prerequisite: Phy 202 or Phy 106 or junior standing in the sciences.

### PHY 225. SYNOPTIC METEOROLOGY

Topics include surface and upper-air weather systems, weather phenomena, climate, and local weather influences. Synoptic map analysis and interpretation are emphasized. Three hours leture and three hours laboratory. Fee: \$40.

## PHY 228. PRINCIPLES OF ASTRONOMY

Topics include orbital mechanics, results of planetary probes, spectra and stellar evolution, and cosmology. Three hours lecture and three hours laboratory. Fee: \$40.

## PHY 301-302. MATHEMATICAL METHODS IN PHYSICS AND THE SCIENCES

Three credits each Study of different areas of mathematics and their applications in physics, engineering, and the sciences. Topics include: ordinary and partial differential equations, Fourier methods, complex variables, matrix methods, Green's functions, tensor analysis, group theoretical methods and others. Three hours lecture-discussion a week. Prerequisite: Mth 211, Mth 212.

## PHY 310. ANALYTICAL MECHANICS

An intermediate level course designed to develop an understanding of the principles of mechanics based on the Newtonian as well as the Lagrangian and Hamilton formulations. The application of matrices, tensors, and differential equations and advanced techniques to the solution mechanics problems. Topics include harmonic oscillations, central force problems, rigid body motions, inertia and stress tensors, elastic waves, eigenvalue problems, normal coordinates and finite symmetry groups. Recitation-lecture three hours a week.

Prerequisite: Mth 211, Mth 212, Phy 211.

### PHY 323. X-RAY DIFFRACTION

Four credits Study of structure and composition of solids using X-rays. Effects of annealing, substructures, cold work, preferred orientation, and ordering. Principles of design and applications of X-my diffraction techniques. Three hours lecture and one three-hour laboratory a week. Fee: \$45. Prerequisite: Phy 203.

## PHY 325-326. MEDICAL & HEALTH PHYSICS I & II

Three credits each A study of the applications of basic physical principles to various problems in the medical and health sciences. These include the effect of ionizing and non-ionizing radiation on living matter and the various techniques of scanning and image formation. Also included will be the topics of dosimetry, lasers in medicine, computer amsted diagnoses and other areas of interest to medical and health physicists. Fee: \$40 per semester.

Prerequisite: Junior standing in the program or approval of instructor.

## PHY 330. OPTICS AND LIGHT

Four credits The principles of geometrical and physical optics are considered in considerably greater detail than in the introductory course. Image formation, refraction, diffraction, origin of spectra polarized light, optical activity, etc. Three hours class and one three-hour laboratory a week Fee: \$40.

Prerequisite: Phy 202.

## PHY 331. ELECTRICITY & MAGNETISM I

Vector analysis. The concept of fields. Dielectric and magnetic media; fields in conductors electric magnetic circuit elements. Maxwell's equations and boundary condition problems in one, two, and three dimensional space. Plane electromagnetic waves and power flow. Three hours lecture a week. Prerequisite: Mth 211, Phy 202.

## PHY 332. ELECTRICITY & MAGNETISM II

## Development of Maxwell's equations and boundary-value problems. Plane wave propagation and reflection from boundaries; the Poynting Theorem; Transmission lines and strip lines; impedance transformation and Smith Charts; guided TEM, TE, and TM waves; radiation from dipole antenna. Three hours lecture a week. Prerequisite: Phy 331.

## PHY 333. ELECTRICITY & MAGNETISM LAB I

**One credit** 

**One credit** 

**Three credits** 

Laboratory experiments are performed which illustrate fundamental electromagnetic field concepts in distributed systems and in lumped element circuits. Experiments are partially planned by the students and reported both formally and informally. One three-hour laboratory a week. Fee: \$40.

Corequisite: Phy 331.

## PHY 334. ELECTRICITY & MAGNETISM LAB II

A continuation of Phy 333 with emphasis on transmission line concepts and the interaction of electromagnetic fields and matter. One three-hour laboratory a week. Fee: \$40. Prerequisite: Phy 333.

## PHY 340. THERMODYNAMICS

## Three credits The fundamental concepts and laws of thermodynamics. Carnot cycle, entropy and applications. Kinetic theory, statistical mechanics, and applications to fundamental systems. Lecturediscussion three hours a week.

Prerequisite: Phy 106 or Phy 202, Mth 211 or Mth 212.

## PHY 351. QUANTUM MECHANICS

### **Three credits**

An introduction to Quantum mechanics. Schrodinger's equation and its application to the potential-well, the harmonic oscillator, and the hydrogen atom. Angular momentum perturbation theory. Identical particles; Pauli's exclusion principle. The Dirac relativistic wave equation and the origin of electron spin. Lecture-discussion three hours a week. Prerequisite: Phy 301 or Mth 361 or Phy 310.

### PHY 361. ATOMIC PHYSICS

## Three credits

Planck's theory of cavity radiation, photons, and the particle aspect of radiation, the wavelike properties of particles, Schroedinger's theory of quantum mechanics, one-electron atoms, special functions, use of recursion relations to evaluate selection rules, X-ray and optical excitations of multi-electron atoms, application of group theory to the normal modes of molecules, quantum statistics with simple applications to solids. Three hours lecture-discussion a week. Prerequisite: Phy 203.

## PHY 363. ATOMIC PHYSICS LABORATORY

### **One credit**

Experiments are chosen to illustrate the practical aspects of atomic theory. Properties of blackbody radiation; photoelectric effect; compton scattering; fine structure, isotope, and zeeman splitting of spectral lines; X-ray line spectra and Moseley's Law; X-ray diffraction from crystals, etc. One three-hour laboratory a week. Fee: \$40.

Prerequisite: Phy 221. Corequisite: Phy 361.

### PHY 370. INTRODUCTION TO SOLID STATE PHYSICS

## Three credits Introduction to bonding and crystal structure, symmetry considerations, recriprocal lattice considerations, lattice dynamics, electronic structure of simple metals, insulators, and semiconductors, dielectric, ferroelectric, and magnetic properties of materials. Three-hour lecture. Prerequisite: Phy 203.



## The School of Engineering and Physical Sciences

Three credits

One credit

Three credits

One credit

Two credits

One to three credits

One to three credits

PS 201 Politi

Core Require

PE 100 Activ

### PHY 380. NUCLEAR PHYSICS

Some properties of nuclei: size, density, shape; the nuclear force; models of nuclear structure; unstable nuclei; radioactive decay; alpha decay, Gamow's theory; beta decay; Fermi's theory. gamma decay and the Moessbauer effect; nuclear reactions, the excited states of nuclei; fission and reactors; fusion and reactors; fusion, the origin of the chemical elements; elementary particles; unification. Lecture-discussion three hours a week. Prerequisite: Phy 203.

## PHY 382. NUCLEAR PHYSICS LABORATORY

An introduction to some tools and techniques of nuclear physics. Nuclear magnetic resonance, particle counting; vacuum techniques; proton-proton scattering; multi-channel analyzers and beta spectra; dating techniques; field trips to experimental and power reactors, etc. Three hours a week. Fee: \$40.

Prerequisite: Phy 221

Corequisite: Phy 380

## PHY 390. PRACTICUM

Training assignment under the direct supervision of a working professional in a specialty appropriate to the student's curriculum. Participating institutions such as hospitals, laboratories, and industrial or academic facilities will cooperate in this training. Can be repeated for credit. Prerequisite: Department approval.

## PHY 391. SENIOR PROJECTS I

Design and development of selected projects in physics and other related fields under the direc-tion of a staff member. Technical as well as economic factors will be considered in the design. A professional paper and detailed progress report are required. Prerequisite: Senior standing in physics.

## PHY 392. SENIOR PROJECTS II

Design and development of selected projects in physics and other related fields under the direction of a staff member. Technical as well as economic factors will be considered in the design. A professional paper to be presented and discussed in an open forum is required. Prerequisite: Senior standing in physics.

## PHY 393-394. ADVANCED LABORATORY

One to three credits each Laboratory projects in fundamental or applied physics. A topic must be chosen in consulta with a faculty supervisor. Fee: \$45.

Prerequisite: Phy 221

Junior or senior standing in the sciences.

### PHY 395-396. INDEPENDENT RESEARCH

Independent study and research for advanced students in the field of physics under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. Prerequisite: Senior standing and approval of department chairman.

## PHY 397. SENIOR SEMINAR

Presentations and discussion of selected topics.

Prerequisite: Senior standing or by special departmental permission.

### PHY 198/298/398. TOPICS IN PHYSICS

Variable credit Selected topics in the field of physics. These may include one or more of the following: astronomy: geophysics: biophysics: nuclear power & waste: relativity: quantum mech

The College of Arts and Sciences

## **POLITICAL SCIENCE**

Professor Berlatsky, Chairman; Professors Emeritii Driscoll, Kaslas, Leach; Professors Cox, Hartdagen, Rodechko, Shao; Assistant Professors Bauzon, Behuniak-Long, Berg, Meyers, Tuhy: Adjunct Professor Thomas.

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Total minimum number of credits for a B.A. degree - 120. Total minimum number of credits for a minor -18. Total minimum number of credits for a concentration in Public Administration -33.

A major in Political Science requires 120 hours. These include 45-65 hours in the Core and 33 hours in Political Science. All students must take PS 102, 105, 201, 202 and 238 plus 18 advanced hours.

Students may choose to concentrate in Public Administration by taking 33 hours. Students must take the departmental requirements (PS 102, 105, 201, 202 and 238) and then choose 18 additional hours from PS 218, 314, 316, 318, 319, 354, 398. Students must take 6 hours of cognate courses (see semester by semester program). PS 394 is recommended but not required.

A minor in Political Science requires PS 102 and 105 plus 12 hours of advanced courses. Students must take a concentration of 9 hours in one area chosen from American Government, Comparative/International Politics, or Public Administration.

Students who major in Political Science have a wide variety of career options in government, law, education, social service and business.

See Pre-Law for information on law school admission.

## **Recommended Course Sequence for a Degree in Political Science**

First Sem	ester	Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II PS 102 American Government or	3
PS 102 American Gove	overnment 3	PS 105 Comparative Government	3
Core Requirements	9	Core Requirements	9
PE 100 Activity	0	PE 100 Activity	0
	15		15

emester

9

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hird Semester		Fourth Semeste
cal Theory	3	PS 202 International Relations
nents	12	PS 238 Concepts and Methods
tv	0	Core Requirements
		PE 100 Activity

conductors; cryogenics; health physics. May be repeated for credit. Prerequisite: Varies with topic studied.

15

**Free Electives** 

## The College of Arts and Sciences

Fifth Semester		Sixth Semester	
Major Electives Free Electives	6 9	Major Electives Free Electives	6
	15		15
Seventh Semester		Eighth Semester	
Major Electives	3	Major Electives	3
FIEE EIECUVES	12	Free Electives	12

## **Recommended Course Sequence for Concentration in Public Administration**

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	
PS 102 American Government or		PS 102 American Government or	
PS 105 Comparative Government	3	PS 105 Comparative Government	
Ec 101 Principles of Economics	3	Mth 150 Statistics	
Core Requirements	6	Core Requirements	
PE 100 Activity	0	PE 100 Activity	
	15		1
Third Semester		Fourth Semester	
PS 201 Political Theory	3	PS 202 International Relations	
Major Electives	3	PS 238 Concepts and Methods	1
Core Requirements	9	Core Requirements	(
PE 100 Activity	0	PE 100 Activity	(
	15		15
Fifth Semester		Sixth Compostor	
Public Administration Electives	6	Dublic Administration Float	
Two Courses from PS 218 314 316	0	(Two Courses from DS 218, 214, 216	6
318, 319, 354, or 398)		(1wo courses norm PS 218, 314, 316, 318, 319, 354, or 398)	
Core Requirements	3	Free Flectives	0
Free Electives	6		9
	15		15
Seventh Semester		Eighth Semester	
Public Administration Electives	3	PS 354 Practicum*	6
One course from PS 218, 314, 316,		Free Electives	9

12

15

## The College of Arts and Sciences

PS 102. INTRODUCTION TO AMERICAN POLITICS Three credits A descriptive and analytical study of the theory and practice of American government, its constitutional basis, organization, powers, functions, and problems. Offered every semester.

## **PS 105. COMPARATIVE GOVERNMENT**

**Three credits** An introductory survey of political systems and processes. Emphasis will be placed on categories and methods of comparison, as well as on issues and problems confronted by selected countries of Europe, Asia, Africa, and Latin America. Offered every semester.

## PS 201. INTRODUCTION TO POLITICAL THEORY Three credits An introductory survey of Western political theory from the ancient Greeks to Karl Marx. Students will be exposed to classic political theory by reading primary rather than secondary sources. The course will emphasize the examination and evaluation of political concepts. Offered every fall.

PS 202. INTRODUCTION TO INTERNATIONAL RELATIONS **Three credits** A survey of major issues and problems underlying the relations among nations. The domestic, ideological, and international determinants of foreign policy will be explored, and some of the dominant theories and assumptions in the study of international relations will be analyzed. Offered every spring.

PS 218. INTRODUCTION TO PUBLIC ADMINISTRATION **Three credits** An introduction to the principles and problems of public administration in an increasingly complex society. Attention to such topics as leadership, informal organizational processes (infra-structure), the relation of administration to its cultural context, and the question of administrative responsibilities. Survey of the technical problems of personnel, finance, and administrative law

Prerequisite: PS 102 or consent of instructor. Offered in alternate years.

PS 238. CONCEPTS AND METHODS IN POLITICAL SCIENCE Three credits Survey of the major concepts, theories, and methods of current political science as a discipline. Some attention to research design and techniques. Prerequisite: PS 102 or 105.

Offered in alternate years.

## PS 301. POLITICAL DYNAMICS

## Three credits

Page 203

A study of the various modes of citizen political participation in the United States. The role of public opinion, voting, political parties, interest groups, and political movements will be examined and evaluated. Case studies will be introduced throughout. Prerequisite: PS 102.

Offered in alternate semesters.

## PS 307. THE AMERICAN PRESIDENCY

**Three credits** An exploration and analysis of the development and changing role of the American President as political leader, decision-maker, world leader. Examines the selection and election process and the effect of this process on the Presidency. Prerequisite: PS 102 or consent of instructor.

Offered in alternate years.



### The College of Arts and Sciences

**Three credits** 

Three credits

**Three credits** 

**Three credits** 

Three credits

## The College of Arts and Sciences

PS 312. INTERGOVERNMENTAL RELATIONS Three credits Analysis of the process by which multiple public jurisdictions interact in the United States Federal System, and the impact of this process on public policy.

Prerequisite: PS 102.

Offered in alternate years.

PS 314. PLANNING IN URBAN DEVELOPMENT Three credits Origins and evolution of city planning, influences of urban growth, legal and institutional framework, and scientific and philosophical premises. Survey of city planning as it has evolved in the United States since 1800 in response to physical, social, and economic problems. Prerequisite: PS 102.

Offered in alternate years.

### PS 316. GOVERNMENT BUDGETING

An examination of the political and administrative aspects of the government budgeting process, including the possibilities and consequences of recent budgetary reforms.

Prerequisite: PS 102 or consent of instructor.

Offered in alternate years.

## PS 318. PUBLIC PERSONNEL ADMINISTRATION

Description and analysis of public personnel; methods of recruitment, assignment, promotion; the relation of the personnel function to its environment; the public service character of government employees.

- Prerequisite: PS 102 or consent of instructor.
- Offered in alternate years.

### PS 323. DEMOCRATIC SYSTEMS

Comparison of the development, institutions, problems, and prospects of democratic systems in the modern world and their relation to capitalist-industrial society. Focus is on Great Britain, France, West Germany, and Japan with some attention to the Scandinavian democracies, Italy, and British Commonwealth nations.

Prerequisite: PS 102 and 105 or consent of instructor.

Offered in alternate years.

## PS 324. COMMUNIST SYSTEMS

Analysis of the social and political conditions out of which the major Communist systems in the Soviet Union and in China developed. Marxism, Leninism, Maoism. Examines the common elements, the differing elements, problems and prospects of the two nations and their interrelationship with each other and other countries of the world. Some attention to Communism in Eastern Europe, and the Third World.

Prerequisite: PS 105 or consent of instructor.

Offered in alternate years.

## PS 325. POLITICS OF DEVELOPING AREAS

The political process in the lesser-developed areas of the world: Asia, Africa, and Latin America. Examines the problems of economic and political change and the relations of these areas to the Western world and the Communist states.

Prerequisite: PS 105 or consent of instructor.

Offered in alternate years.

PS 329. INTERNATIONAL LAW AND ORGANIZATION Three credits A study of the nature, application, and sources of public international law and how it relates to the evolution of global and regional organizations and alliances, including international nongovernmental organizations and other non-state actors. Prerequisite: PS 202 or permission of instructor. Offered in alternate years.

## PS 331. CONSTITUTIONAL LAW I

**Three credits** 

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Study of growth and change of the American Constitution through analysis of the leading cases decided by the U.S. Supreme Court. Analysis of the powers of the three branches of government and of the relations between the states and the Federal Government. Prerequisite: PS 102 or consent of instructor.

Offered in alternate fall semesters.

## PS 332. CONSTITUTIONAL LAW II

Continuation of the study of the meaning of the Constitution as interpreted by the Supreme Court. Analysis of the landmark decisions regarding free speech and press, separation of church and state, rights of persons accused of crime, equal protection of the laws, voting rights. Prerequisite: PS 102 or consent of instructor. Offered in alternate spring semesters.

## PS 335. AMERICAN POLITICAL THOUGHT

## Three credits

Three credits

Study of the political ideas, ideals, and ideologies as they contributed to and developed from the American experience. Analysis of the ways of thought which underlie our political institutions and practices.

Prerequisite: PS 102 or consent of instructor. Offered in alternate years.

PS 353. POLICY FORMATION IN THE LEGISLATURE Three credits

Analysis of the policy-making process in the legislature, focusing on case studies of the process

in the U.S. Congress. Internal processes and external influences. Prerequisite: PS 102 or consent of instructor.

Offered in alternate years.

## PS 354. ADMINISTRATIVE LAW AND POLICY

Analysis of the ways in which public policy is made and effected in administrative agencies, of the ways in which the public administrator operates and the linkage between administrative organizations and other policy-makers and influencers of policy.

Prerequisite: PS 102 and 218 or consent of instructor. Offered in alternate years.

## PS 394. PRACTICUM

## Three to six credits

**Three credits** 

Internship or similar experience in administrative office, community agency, election campaign, or work related to administration or politics.

Prerequisite: At least 4 courses in PS or in Urban Studies, or in a field in which internship will be served, such as Earth and Environmental Sciences. Student must consult with department before registering. Offered every semester.

## PS 395-396. INDEPENDENT RESEARCH

## One to three credits

Independent study and research for advanced students in the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required.

HST 328. U.S. FOREIGN POLICY See description under History. Three credits

Prerequisite: Approval of department. Offered every semester.

## The College of Arts and Sciences

Three credits

Variable credit

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## PS 397. SEMINAR

Presentations and discussions of selected topics by students.

PS 198/298/398. TOPICS IN POLITICAL SCIENCE/ TOPICS IN POLICY ANALYSIS

A study of topics of special interest not extensively treated in regularly offered courses. Examples of possible topics would be: leadership in Congress; minorities in the political process; women and power; urban design; the First Amendment in law and practice; equality at law in an unequal society; Marxism, etc. May be repeated when topics differ. A topics course in a specific field of public policy, such as Energy, Environmental Science, Mental Health and Retardation, etc., may be offered also.

Prerequisite: Permission of department, criterion depending on topic.

## PRE-LAW

Wilkes College has a long and successful tradition of preparing students for law school. Currently, more than half the judges on the Luzerne County Bench are graduates of Wilkes.

Wilkes' liberal education provides the best foundation for a legal career and has allowed its graduates to gain admittance to law schools not only in Pennsylvania but throughout the nation.

## **Pre-Law Curriculum**

The Law School Admissions Council has declared that a specific pre-law curriculum is a "myth". Students who wish to attend law school can major in any subject. Business, Political Science, English and History are the most common majors, but students with majors in Engineering, Biology, Psychology, Math or any other field would be equally likely to gain admittance to law school.

Students should pay special attention to developing skills in English composition, public speaking and logical thought by taking courses that emphasize those skills. Since the key factors in law school admissions are grade point average and LSAT (Law School Admission Test) Scores, students need to be aware of the need to develop a positive academic record from the outset of their college careers.

Complete information on law school admission requirements can be obtained from pre-law advisor, Dr. Joel Berlatsky, in Capin Hall, Room 21. Regular meetings of pre-law students are held to answer questions and provide information about law schools and legal careers.

## PRE-MEDICAL AND PRE-DOCTORAL PROGRAMS

Wilkes College offers pre-professional programs in Medicine, Dentistry, Podiatric Medicine, Optometry and Veterinary Medicine.

The Pre-Medical Program at Wilkes College offers a variety of opportunities for students to prepare for medical school. Wilkes enjoys an enviable record of placement of students in medical school, with acceptance rates of over 90%. Allopathic medical schools accepting Wilkes-prepared students include Thomas Jefferson University, Hahnemann University, Medical College of Pennsylvania, Pennsylvania State University, Temple University, University of Pennsylvania, and the University of Pittsburgh in Pennsylvania, as well as such nationally recognized medical schools as Harvard, Stanford, George Washington, Georgetown, Tulane and Yale to cite a few. A number of Wilkes College students also enter Osteopathic Medical schools, such as the Philadelphia College of Osteopathic Medicine.

The pre-medical curriculum at Wilkes College offers a broad range of choice of academic majors to students. Many major in biology, chemistry or one of the other basic sciences although students have majored in mathematics, engineering, English, etc. and have gained admission to medical school. Medical schools are generally interested in students who have depth training in the sciences along with a broad background in the humanities and social sciences.

The core basic science requirements for most medical schools as well as other doctoral professional schools such as dentistry, podiatric medicine, optometry, and veterinary medicine are as follows:

2 courses in biology

4 courses in chemistry (including organic chemistry) 2 courses in physics

2 courses in mathematics (calculus)

The program of study in the pre-medical or other pre-doctoral programs follows the semester by semester breakdown given in other parts of this Bulletin and is listed under the academic majors such as biology or chemistry. Any pre-doctoral baccalaureate program of study, however, must include the above basic science prerequisites.

A truly unique feature of Wilkes College for pre-doctoral health science students is an elaborate counselling system. Students are advised by faculty in academic departments, the pre-professional advisor and clinical psychologists. It is the function of these faculty overseers in the advisory system to assure that students are entering a professional field for which they are wellsuited and well-prepared, and which they have investigated thoroughly in a professional environment such as a hospital or professional office.



## The College of Arts and Sciences

## The College of Arts and Sciences

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In addition to the ordinary four-year, pre-professional undergraduate programs, Wilkes College has developed distinctive affiliated undergraduateprofessional school programs with the following:

> Temple University School of Dentistry Pennsylvania College of Podiatric Medicine Pennsylvania College of Optometry

These three programs require only three (3) years of study at Wilkes College before entering professional school. Decisions on admission to the professional school are made by action of a joint selection committee of Wilkes College Faculty and Professional School Faculty following three years of study at Wilkes College. Students enrolling in the affiliated programs will generally follow a program of study which is shown below.

## Wilkes College Affiliated Programs in Dentistry/Optometry/Podiatric Medicine

First Semester		Second Semester	
Bio 121 Principles of Modern Bio	logy I 4	Bio 122 Principles of Modern Biol	logy II 4
Chm 115 Elements and Compour	nds 4	Chm 116 The Chemical Reaction	4
Eng 101 Composition I	3	Eng 102 Composition II	3
Mth 105 Calculus for Life, Manag	gerial,	Mth 106 Calculus for Life, Manag	erial,
and Social Sciences I or		and Social Sciences II or	
Mth 111 Calculus I	4	Mth 112 Calculus II	4
Free Electives	0-3	Free Electives	0-3
PE 100 Activity	0	PE 100 Activity	0
	15-18		15-18
Third Semester		Fourth Semester	
Chm 231 Organic Chemistry I	4	Chm 232 Organic Chemistry II	4
Psy 101 General Psychology	3	Free Electives	11-14
Free Electives	8-11	PE 100 Activity	0
PE 100 Activity	0	Health Profession Orientation	0
	15-18		15-18
Fifth Semester		Sixth Semester	
Phy 105 Introductory Physics or		Phy 106 Introductory Physics or	
Phy 201 General Physics I	4	Phy 202 General Physics II	4
Free Electives	12-14	Free Electives	12-14
	16.19		16-18

one year of basic sciences education at the professional school, Wilkes College will award the Bachelor of Science degree.

1Students in the optometry program must take Mth 150 — statistics. 2 Must include the core educational requirements.

## PRE-PHARMACY PROGRAM

Wilkes College is affiliated by contract with the Temple University School of Pharmacy. The pharmacy program is a five-year program leading to a degree in pharmacy at Temple University. The first two years are offered at Wilkes College and contain coursework listed below.

## Two Years at Wilkes College

First Semester		Second Semester	
Rio 121 Principles of Modern Biolog	avl 4	Bio 122 Principles of Modern Biolog	gyll 4
hm 115 Elements and Compound	s 4	Chm 115 The Chemical Reaction	4
na 101 Composition I	3	Eng 102 Composition II	3
Ath 105 Calculus for Life, Manager and Social Sciences I or	rial,	Mth 106 Calculus for Life, Manager and Social Sciences II or	rial,
Wth 111 Calculus I	4	Mth 112 Calculus II	4
Free Electives	0-3	Free Electives	0-3
	15-18		15-18
This is Comparison		Fourth Somostor	
Third Semester	a a state of	Fourth Semester	
Chm 231 Organic Chemistry I Phy 105 Introductory Physics or	4	Chm 232 Organic Chemistry II Phy 106 Introductory Physics or	4
Phy 201 General Physics I	4	Phy 202 General Physics II	4
Ec 101 Principles of Economics I	3	Free Electives	8-10
Free Electives	5-7		
	16-18		16-18

Following completion of these two years successfully, students are eligible to be admitted to the final three years of pharmacy school at Temple University. All prerequisite courses listed above, e.g. Bio 121, Chm 115, etc., must be completed with a grade of at least 2.0.

## PSYCHOLOGY

Associate Professor Charnetski, Chairman; Professor Riley; Associate Professors Bohlander, Stetten; Adjunct Professor Kanner.

Total minimum number of credits for a B.A. degree — 121. Total minimum number of credits for a minor — 18.

Psy 101 is the starting point for the psychology program and must be taken by all psychology majors. This course does not count toward the 27 credit hours of psychology required of majors. In addition to Psy 101, the psychology major must take Psy 215 (Research Design and Analysis). It is strongly recommended that Psy 211-212 (Experimental Psychology) be taken if the student is planning graduate study. The General Core Requirements must be satisfied by the Psychology major.



## The College of Arts and Sciences

### The College of Arts and Sciences

Psy 395 Independent Research †

Cooperative Education †

Free Electives

Seventh Semester

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3

13

16

Eighth Semester

Psy 396 Independent Research †

Free Electives

It is required that the student take at least one course from each of the Interest Areas below.

## Interest Area I.

- Psy 211-212 Experimental Psychology
- Psy 203 Contemporary Psychological Theories
- Psy 213 Physiological Psychology
- Psy 214 Sensory and Perceptual Processes

## Interest Area II.

- Psy 221 Developmental Psychology Psy 232 Human Behavior Psy 331 Abnormal Psychology
- Psy 255 Social Psychology

## **Interest Area III.**

- Psy 242 Psychological Tests Psy 243 Industrial Psychology
- Psy 245 Clinical Psychology

Psy 211 Experimental Psychology I †

Major Electives

Free Electives

Students who choose to minor in psychology are required to take psychology 101 and psychology 215 and an additional twelve credits in advanced psychology courses.

First Semester		Second Semester	
Psy 101 General Psychology*	3	Major Electives 3	
Eng 101 Composition I	3	Eng 102 Composition II 3	
Core Requirements	9	Core Requirements	
PE 100 Activity	0	PE 100 Activity 0	
	15	The second s	
		PE 100 Activity	
Third Semester		Fourth Semester	
Psy 215 Research and Design*	3	Major Electives 3	
Core Requirements	12	Core Requirements	
PE 100 Activity	0	Free Electives 3	
	15	PE 100 Activity 0	
		15	
		and the result in the state of the second	
Fifth Semester		Sixth Semaster	

3

3

9

15

## Psy 212 Experimental Psychology II † 3 Major Electives Free Electives

## 15 **PSY 101. GENERAL PSYCHOLOGY Three credits each**

3

6

6

An introduction to the field of psychology with emphasis on objectives and systematic methods of inquiry. Extensive treatment of major psychological topics such as sensation, perception, learning, motivation, intelligence, and personality development. Frustration, conflict, and mental health also receive attention.

PSY 201. ADVANCED GENERAL PSYCHOLOGY **Three credits** A more detailed study of topics treated only superficially in the introductory course. There will be emphasis on contemporary readings. Prerequisite: Psy 101.

PSY 203. CONTEMPORARY PSYCHOLOGICAL THEORIES Three credits An examination of current theories in psychology, with emphasis upon the major systematic and "miniature" learning theories. Prerequisite: Psy 101.

## PSY 206. HISTORY OF PSYCHOLOGY

**Three credits** A study of the philosophic and scientific roots of contemporary psychology, with emphasis on the applicability of past questions and knowledge to current psychological thought. equisite: Psy 101.

## 11-212. EXPERIMENTAL PSYCHOLOGY

## Three credits each

ire and laboratory course designed to familiarize the student with the methods and the of modern psychological research. The course includes a study of several of the famous nents in the field of psychology. Also included is practice with the older as well as the cent methods of experimental research. Lecture and laboratory. Fee: \$35 each semes-

equisite: Psy 215.

## 13. PHYSIOLOGICAL PSYCHOLOGY

## Four credits

y of the physiological mechanisms mediating behavior. Emphasis on the structure and on of the nervous system and the neurophysiological bases of sensory processes, emo-bnormal behavior, sleep, learning and memory. Laboratory experience includes brain ion, small animal experimentation, and demonstrations of neurosurgical technique.

equisite: Psy 101; junior or senior standing.

## 14. SENSORY AND PERCEPTUAL PROCESSES

**Three credits** les and phenomena of human sensory and perceptual processes are studied within the visual, auditory, olfactory, gustatory, proprioceptive and cutaneous systems. Students are familiarized with techniques used in the investigation of sensory and perceptual phenomena. Prerequisite: Psy 101.

## PSY 215. RESEARCH DESIGN AND ANALYSIS

**Three credits** 

An introduction to the use of scientific methods as a means of studying behavior. This course is required of all majors. \*Required TRecommended

## The College of Arts and Sciences

Three credits

Three credits

Three credits

Three credits

**Three credits** 

Three credits

Three credits

Three credits

Three credits

One to three credits

## The College of Arts and Sciences

Associate Professor Karpinich.

Presentations and discussions of selected topics

PSY 198/298/398. TOPICS IN PSYCHOLOGY

Prerequisite: Approval of department chairman is required.

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Variable credit

## PSY 221. DEVELOPMENTAL PSYCHOLOGY

The course provides a general view of human growth and development from conception through infancy, childhood, and adolescence. It focuses on innate characteristics and the manner in which they are modified by the environment during the developmental process. Psychosocial development as well as physical, language, and intellectual development are considered. Prerequisite: Psy 101.

## **PSY 232. HUMAN BEHAVIOR**

Human adjustment and maladjustment to life situations with emphasis on motivation, emotional control, personality formation, and the treatment of the lesser personality disorders. Prerequisite: Psy 101

## **PSY 242. PSYCHOLOGICAL TESTS**

A survey of the functions measured by psychological tests with emphasis on intelligence and personality. A variety of the group and individual tests which measure these functions are studied. This course is a prerequisite for Psy 245.

Prerequisite: Psy 101.

## **PSY 243. INDUSTRIAL PSYCHOLOGY**

A survey of the applied areas of personnel, organizational, human factors, and consumer psy chology

Prerequisite: Psy 101.

### **PSY 245. CLINICAL PSYCHOLOGY**

A survey of the clinical method in psychology with consideration of diagnostic and treatment techniques and the role of the professional psychologist in various settings. Prerequisite: Psy 242 and Psy 331.

### **PSY 255. INTRODUCTION TO SOCIAL PSYCHOLOGY**

A general survey of the field of social psychology. Social factors in human nature; psychology of individual differences; social interaction; collective behavior, psychology of personality, social pathology

Prerequisite: Soc 101 or Ant 101 or Psy 101, or approval of instructor.

## **PSY 311. COMPARATIVE PSYCHOLOGY**

A survey of underlying genetic and biological mechanisms influencing human and non-human behavior. Emphasis is on the role of evolution and natural selection in the development of behavioral adaptations, and to behavioral comparisons among species. Topics include the fields of ethology, sociobiology, and behavioral genetics.

Prerequisite: Psy 101.

## PSY 325. THE EXCEPTIONAL INDIVIDUAL

A study of the psychological, physical, and social problems and needs of exceptional individuals. Major emphasis is placed on the diagnosis, psychological assessment, and clinical observations vation of three types of exceptionality: the mentally defective, gifted, and sensory-motor impaired.

Prerequisite: Psy 101 and Psy 221.

## **PSY 331. ABNORMAL PSYCHOLOGY**

A general survey of the principle forms of mental abnormalities, with emphasis on causes symptoms, course, and treatment. Prerequisite: Psy 232.

### PSY 395-396. INDEPENDENT RESEARCH

Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. Prerequisite: Approval of department chairman is required.

The Department of Language and Literature offers a two-year program in Russian.

PSY 397. SEMINAR (Maximum of three credits per student) One to three credits

A study in topics of special interest not extensively treated in regularly offered courses.

**RUSSIAN AND OTHER LANGUAGES** 

Languages not included in the regular curriculum may be offered as demand arises and as circumstances permit. Languages that may be offered include Polish, Ukrainian, Hebrew, Italian, and Latin. Interested students should contact the department chairman.

## **RUS 101-102. ELEMENTARY RUSSIAN**

## Three credits each Fundamentals of spoken and written Russian, and introduction to Russian culture. Includes systematic coverage of basic Russian grammar. Work in language laboratory required. Not recommended for students having completed two or more years of high school Russian.

## **RUS 203-204. INTERMEDIATE RUSSIAN**

## **Three credits each**

Emphasis on development of proficiency in spoken and written Russian. Includes review and further study of grammar. Oral and written work based upon short cultural and literary texts. Work in language laboratory required.

Prerequisite: Rus 102 or two years of high school Russian or permission of instructor.

## **RUS 198/298. TOPICS**

### **Three credits**

Investigation of an aspect of the language, literature or culture. May be repeated for credit. Prerequisite: Permission of instructor.

## **OTHER LANGUAGES** (As described above)

### 101-102.

## Three credits each

Designed to develop fundamental skills in the selected language and to introduce students to the culture. Includes systematic coverage of basic grammar supplemented with work in language laboratory where appropriate.

### Three credits each

203-204. Continued study of grammar and development of proficiency in basic language skills. Exercises based on short cultural and literary texts.

Prerequisite: 102 or permission of instructor.

#### 198/298. STUDIES IN LANGUAGE AND CULTURE Three credits

Investigation of an aspect of the selected language and culture. May be repeated for credit. Prerequisite: Permission of instructor.



## The College of Arts and Sciences

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## SOCIOLOGY

Associate Professor Natzke, Chairman; Associate Professor Brown; Assistant Professors Garr and Tutwiler; Adjunct Professor Tomkiewicz.

## Total minimum number of credits required for a B.A. degree - 121. Total minimum number of credits required for a minor -18.

The Department of Sociology and Anthropology offers a comprehensive program of studies which is very competitive with most departments of its size in the country. We have a high quality faculty, all of whom hold the Ph.D., excellent learning and research facilities, on-going interdisciplinary programs with other departments in the College, a wide variety of opportunities for internships in professional settings which integrate a student's academic studies with productive work experiences, and an active Study Abroad program. The curriculum is committed to offering a complete program of studies within the major, with balanced attention to a wide range of interests within the general field of sociology. The department is noted for its commitment to training students who will pursue advanced study in sociology, anthropology, social work, education, law, criminal justice, the health professions and related fields.

One of the unique features of the curriculum is the possibility of seeking dual-majors in two programs. Utilizing existing programs and courses, it is possible for students to achieve a B.A. degree with a double major in sociology and psychology, criminal justice, or other related disciplines. Career counseling is readily available within the department for students making such program commitments.

The formal requirements for the major in sociology are: (1) Soc 101 and Ant 101 (required but not accepted as credit hours toward the major); (2) twenty-four hours, including Soc 255, 370, and 380. All anthropology courses beyond anthropology 101 may be taken for credit toward the major or minor in sociology. Also Phl 230 and/or 350 may be taken toward the major. Soc Analysis 394 and/or Mth 150 is strongly recommended for students planning graduate study. Courses required in one's major such as Soc 101 and Ant 101 may also be used to fulfill core requirements. The department offers Practicum 399, a supervised practical field experience, designed for sociology majors, that involves work in a professional setting. The six hours earned in Practicum may not be applied toward the twentyfour hours required for the major. Approval of the department chairman is required before registering for Practicum.

## **Sociology Minor**

A minor in Sociology consists of 18 hours, including Soc 101. At least one of the following courses is required. Social Psychology 255; Sociological Methods 370; Sociological Theory 380.

The department offers Practicum 399, a supervised practical field experience, designed for sociology minors, in a professional setting. The six hours earned in Practicum may not be applied toward the eighteen hours required for the minor. Approval of the department chairman is required before registering for Practicum.

## Social Work/Human Services

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Students who intend to work or pursue advanced study in the field of Social Work and/or Human Services are urged to take at least three courses in Social Work, two courses in Psychology, and complete 120 hours of supervised practical field experience in a professional setting. The latter requirement may be completed through the auspices of the Cooperative Education Program.

## **Certification in Education**

Sociology majors seeking certification in education must complete the Social Studies Certification Program. A description of the program is given on page 115.

## **Recommended Course Sequence for Sociology Majors**

First Semester		Second Semester	
oc 101 Intro. to Sociology	3	Ant 101 Intro. to Anthropology	:
ng 101 Composition I	3	Eng 102 Composition II	:
ore Requirements	9	Core Requirements	(
E 100 Activity	0	PE 100 Activity	(
	15		15
Third Semester		Fourth Semester	
ore Requirements	9	Core Requirements	9
lajor Electives	3	Major Electives	
ree Electives	3	Free Electives	:
E 100 Activity	0	PE 100 Activity	(
	15		15
Fifth Semester		Sixth Semester	
oc 255 Social Psychology	3	Major Electives	6
lajor Electives	3	Free Electives	5
ore Requirements	3		14
ee Electives	6		1

15

Sixth Semester	
Major Electives Free Electives	
	1



## The College of Arts and Sciences

Three credits

Three credits

Three credits

**Three credits** 

Three credits

Seventh Semester		Eighth Semester
Soc 370 Methods*	3	Soc 380 Sociological Theory*
Free Electives	12	Soc 396 Independent Research
	15	Free Electives

\*Students with educational aspirations beyond the bachelor's degree and/or full-time internship commitments durp the eighth semester (e.g. Soc 399 Practicum 6cr, Cooperative Education 9cr, and Soc 396 Independent Research 1cr) should plan to take Soc 370 and Soc 380 in their fifth and sixth semester respectively.

## SOC 101. INTRODUCTION TO SOCIOLOGY

A systematic view of sociology, providing essentials for an approach to questions about manin society; analysis of social processes, structures, and functions.

## SOC 200. THE FAMILY

Three credits History and ethnological studies of family. Role of family in the development of the individual Interrelation of church, state, and family. Social conditions and changes affecting the American family. Family stability and disorganization.

Prerequisite: Soc 101 or Ant 101, or approval of instructor.

## SOC 202. FAMILY DYNAMICS

Three credits Family life education orientation. Presentation of the current major ideas concerning skills necessary for effective family life is emphasized. Dating and married couples are encouraged to take this course together. Enrollment limited to 20 students.

## Prerequisite: Soc 101, Ant 101, or approval of instructor.

## SOC 204. FAMILY VIOLENCE

It is customary to think of violence between family members as infrequent and, when it does occur, as being the result of some mental defect or aberation. Research evidence shows that neither of these views is correct. This course examines the prevalence, experience, causes, and prevention of family violence.

Prerequisite: Soc 101, Ant 101, or approval of instructor.

## SOC 206. SEX ROLES

This course deals with the origins of sex roles, the historical changes in sex roles, the contequences of sex roles to the individual and to society, and the outlook for sex roles in the future. Prerequisite: Soc 101, Ant 101, or approval of instructor.

## SOC 230. SOCIAL PROBLEMS

A survey of most pressing contemporary social problems and an examination of current theo ries of social disorganization.

## Prerequisite: Soc 101 or Ant 101, or approval of instructor.

## SOC 235. CRIME AND JUVENILE DELINQUENCY

Three credits Evaluation of current theories and research into causative factors and sociological implications of criminal and delinquent behavior. Examination of problems, programs, and issues in prevention and treatment of deviant behavior.

Prerequisite: Soc 101 or Ant 101, or approval of instructor.

## SOC 240. MEDICAL SOCIOLOGY

Surveys findings and methods in current applications of sociology to medicine. Includes accorsideration of large and small scale social influences on the organization of medical institutions and practices.

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SOC 241. THE SOCIOLOGY OF MENTAL DISORDERS

Reviews major sociological approaches to the generation and treatment of psychiatric disorders. Attention is given to anti-psychiatric theories of mental disorders which construe 'mental disorders' as primarily social phenomena

Prerequisite: Soc 101, Ant 101, or permission of the instructor.

## SOC 242. SOCIAL GERONTOLOGY

**Three credits** Considers major findings about the social organization of aging and dying. Reviews history, present and future implications of the rapidly expanding population of elderly. Prerequisite: Soc 101, Ant 101, or permission of the instructor.

### SOC 250. SOCIAL STRATIFICATION

Three credits A survey of the structure and dynamics of social inequality in American life. Attention is focused on the institutionalization of power arrangements that perpetuate intergenerational pattems of economic, political, and prestige inequalities among collectivities. A special effort is made to compare the consequences of structured social inequality for the very wealthy and the very poor.

Prerequisite: Soc 101, Ant 101, or permission of instructor.

### SOC 251. FIELDS OF SOCIAL WORK

Three credits A survey of the main problems of social work and of agencies and methods that have developed to cope with them. The nature and requirements of the different fields of social work. Prerequisite: Soc 101 or Ant 101 or Psy 101-102, or approval of instructor.

SOC 252. COMPARATIVE SOCIAL WELFARE SYSTEMS **Three credits** Examination of the social welfare institution within a societal and cultural context. Exploration of historical and conflicting views on responsibility for developing measures to cope with social problems in North American, European, Asiatic, and African countries. Prerequisite: Soc 101 or Ant 101, or approval of instructor.

SOC 253. INTERVENTIVE STRATEGIES IN SOCIAL WORK **Three credits** A survey of the strategies used by social workers, and other professionals in human services, to intervene in the problems manifested by their clients, such as drug and alcohol abuse, child abuse, family violence, mental disorders, mental retardation, poverty, and the crises of the elderly.

#### SOC 255. INTRODUCTION TO SOCIAL PSYCHOLOGY Three credits

A general survey of the field of social psychology. Social factors in human nature; psychology of individual differences; social interaction; collective behavior; psychology of personality; social pathology.

Prerequisite: Soc 101 or Ant 101 or Psy 101-102, or approval of instructor.

## SOC 260. PERSONALITY, CULTURE, AND SOCIETY

## **Three credits**

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**Three credits** 

Examination of current theories and research bearing upon the relationship among personality, culture, and society; contributions and convergent development in psychology, anthropology, and sociology.

Prerequisite: Soc 101 or Ant 101 or Psy 101-102, or approval of instructor.

### SOC 265. THE SOCIOLOGY OF WORK

## Three credits

An examination of varieties of work with particular emphasis on the industrial and service sectors and the professions. Included is a consideration of labor markets, occupational control, the social division of labor, and the nature of work.

Prerequisite: Soc 101, Ant 101, or permission of the instructor.

Prerequisite: Soc 101 or Ant 101, or approval of instructor.

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Three credits

SOC 275. SOCIOLOGY OF MINORITIES

Three credits A theoretical analysis of inter-group tensions and processes of adjustment with special reference to modern racial, national, and religious conflicts. Prerequisite: Soc 101 or Ant 101, or approval of instructor.

## SOC 370. METHODS OF RESEARCH IN SOCIOLOGY

Three credits Introduction to sociological research; selected problems of research in social relations; interviewing techniques; questionnaire design and case studies. Prerequisite: Soc 101, or approval of instructor.

## SOC 380. SOCIOLOGICAL THEORY

Three credits The aim of the course is to provide the student majoring in sociology, or in one of the related fields, with a historical background necessary for understanding of the current trends in socioogy as well as for clarification of its distinct subject matter, problems, and methods. Prerequisite: Soc 101, or approval of instructor.

## SOC 394. SOCIOLOGICAL ANALYSIS

Three credits The systematic critical evaluation of data by means of concepts and methods consistent with the principles of sociology. Both quantitative and qualitative procedures will be employed. Prerequisite: Soc 101 or Ant 101, or approval of instructor.

## SOC 395-396. INDEPENDENT RESEARCH

One to three credits Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. Prerequisite: By arrangement with an instructor.

## SOC 397. SEMINAR

Presentations and discussions of colocted the	
resentations and discussions of selected themes and issues in sociology.	
Prerequisite: Criteria will vary according to content of seminar.	
investing an experience that meaning of a combinational to hear particulation of the beach we all the second	

## SOC 198/298/398. TOPICS

Variable credit A study of topics of special interest not extensively treated in regularly offered courses.

## SOC 399. PRACTICUM

Six credits A supervised practical field experience designed for sociology majors that involves work in a professional setting.



## The College of Arts and Sciences

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## **SPANISH**

Associate Professor Karpinich.

## Total minimum number of credits required for a B.A. degree - 120. Total minimum number of credits required for a minor — 18.

A major in Spanish consists of twenty-four credit hours in advanced language courses beyond the 204 course. These twenty-four credits must normally include 301-302. Students seeking public school certification must also take 205, 206, 207, 208 or 209, and 350; and in addition to the required twenty-four credit hours, 390 and English 222. In order to enhance their command of language and their understanding of culture, majors are urged to spend a summer or semester abroad.

Students majoring in Spanish may elect a five-year program of study leading to a Master of Business Administration Degree. Information about this program and about career possibilities may be obtained in the office of the Department of Language and Literature, Room 201 Kirby Hall.

A minor in Spanish shall consist of eighteen credit hours beyond 102.

## **Recommended Course Sequence for a Degree in Spanish**

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Sp 101 Elementary I	3	Sp 102 Elementary II	3
Core Requirements	9	Core Requirements	9
PE 100 Activity	0	PE 100 Activity	0
	15		15
Third Semester		Fourth Semester	
Sp 203 Intermediate I	3	Sp 204 Intermediate II	3
Core Requirements	12	Core Requirements	12
PE 100 Activity	0	PE 100 Activity	0
	15		15
Fifth Semester		Sixth Semester	
Sp 205 Conversation	3	Sp 206 Advanced Conversation	3
Major Electives	3	Major Electives	3
Free Electives	9	Free Electives	9
	15		15
Seventh Semester		Fighth Semester	

## The College of Arts and Sciences

Three credits each

**Three credits** 

Three credits

## The College of Arts and Sciences

of grammar and idiomatic expression.

SP 397. SEMINAR

SP 198/298/398. TOPICS

Prerequisite: Sp 204 or permission of instructor.

preparation and presentation of instructional materials.

Prerequisite: Senior standing and permission of department chairman.

and the novel of the Mexican Revolution. May be repeated for credit.

SP 390. THE TEACHING OF SPANISH

SP 395-396. INDEPENDENT RESEARCH

Presentations and discussions of selected topics.

Prerequisite: Approval of department chairman.

Prerequisite: Sp 301-302 or permission of instructor.

Prerequisite: Approval of department chairman.

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**Three credits** 

Variable credit

One to three credits each

## SP 101-102. ELEMENTARY SPANISH

Three credits each Fundamentals of spoken and written Spanish, and introduction to Spanish culture. Includes systematic coverage of basic Spanish grammar. Work in language laboratory required. Not recommended for students having completed two or more years of high school Spanish.

## SP 203-204. INTERMEDIATE SPANISH

Emphasis on development of proficiency in spoken and written Spanish. Includes review and further study of grammar. Oral and written work based upon short cultural and literary texts. Work in language laboratory required.

Prerequisite: Sp 102 or two years of high school Spanish or permission of instructor.

## SP 205. CONVERSATION

Three credits Practice in spoken Spanish with emphasis on mastery of idiomatic expression. Informal discussions, reports, debates, and written compositions. Work in language laboratory, Prerequisite: Sp 204 or permission of instructor.

## SP 206. ADVANCED CONVERSATION

Advanced practice in spoken Spanish with emphasis on special problems of idiomatic expression. Discussions, reports, debates, and written compositions on topics of current interest in the Spanish-speaking world.

Prerequisite: Sp 205 or permission of instructor.

## SP 207. PHONETICS

Three credits A contrastive study of the sound system of modern Spanish and modern English. Intensive on and aural practice including work in the language laboratory. Prerequisite: Sp 204 or permission of instructor.

## SP 208. CULTURE AND CIVILIZATION

Three credits Systematic introduction to the political, social, economic, and cultural characteristics of Spain and the Spanish-speaking world. Readings from a variety of sources including the Spanish press.

Prerequisite: Sp 204 or permission of instructor.

### SP 209. LATIN AMERICAN CULTURE AND CIVILIZATION Three credits

Systematic study of the historical, cultural, economic, and political development of the countries of Latin America (Spanish-speaking countries and Brazil). Pre-Columbus cultures (Maya, Aztec, and Inca) will be examined. Use of audio-visual material and other activities included. Prerequisite: Sp 204 or permission of instructor.

## SP 298. STUDIES IN LANGUAGE AND CULTURE

Development of a particular language skill or investigation of an aspect of Spanish culture. Possible topics include translation, commercial Spanish, Spanish for Health Science Careers, Spanish Folklore, Spanish-American Folklore, and others. May be repeated for credit. Prerequisite: Sp 204 or permission of instructor.

## SP 301-302. SURVEY OF SPANISH LITERATURE

Three credits each Survey of representative works from the middle ages to the present. Introduction to major movements, literary traditions, genres, and writers. Prerequisite: Sp 204 or permission of instructor.

### SP 308-309. SURVEY OF SPANISH-AMERICAN LITERATURE

Three credits each A survey of the evolution of Spanish-American literature from the discovery to the present. Readings from outstanding works from different periods and regions. Prerequisite: Sp 204 or permission of instructor.

# SPEECH, COMMUNICATIONS, AND

**THEATER ARTS** 

SP 350. ADVANCED GRAMMAR AND COMPOSITION Three credits

Analysis of a variety of Spanish texts and extensive writing practice. Work on special problems

Examination of methods and techniques of foreign-language teaching. Practical exercises in

Independent study and research in the field of the major under the direction of a staff member.

Examination of special topics in Spanish literature. Possible topics include the drama of the Golden Age, the nineteenth century Spanish novel, Cervantes and Don Quixote, modernism,

(Maximum of three credits per student) One to three credits

Professor Emeritus Holm; Associate Professors Kinney, O'Neill; Assistant Professors Elmes-Crahall, Schulman; Endowed Chair, Bigler; Engineer, Brigido.

## Total minimum number of credits required for a B.A. degree — 120. Total minimum number of credits required for a minor -18.

The Department of Speech, Communications, and Theater Arts has concentrations in Rhetoric and Public Communication; Interpersonal and Organizational Communication; Telecommunications (Broadcasting); Journalism; and Theater Arts. Each concentration offers a wide choice of career options as well as graduate school preparation. While each concentration has its own unique curricular aspects, the goals are the same - a graduate who is able to write, speak, and think both analytically and creatively. While the program is not highly specialized, there are enough skills and performance courses and co-curricular activities that our graduates will be able to apply their abilities to every-day situations. In addition, the theory, writing and analysis courses should enable that student to advance beyond the entry level in his/her chosen field or even to change fields entirely. We believe the curriculum also affords ample opportunity for the student to explore other disciplines.



## The College of Arts and Sciences 1

## The College of Arts and Sciences

Minors are offered in each of the areas of concentration provided by the Department. Minor requirements are as follows:

1. Interpersonal and Organizational Communication Minor Required: Either SCT 101 Fundamentals of Speech or SCT 102 Principles of Communication

Electives: Five of the following:

SCT 202 Interpersonal Communication SCT 203 Small Group Communication SCT 206 Business and Professional Speaking SCT 301 Persuasion SCT 302 Public Relations SCT 303 Organizational Communication

## 2. Rhetoric and Public Communication Minor

Required: Either SCT 101 Fundamentals of Speech or SCT 102 Principles of Communication

- Electives: Five of the following:
  - SCT 201 Advanced Public Speaking SCT 203 Small Group Communication SCT 204 Argumentation and Debate SCT 206 Business and Professional Speaking SCT 300 Rhetorical Criticism SCT 301 Persuasion SCT 302 Public Relations

3. Telecommunications Minor

Required: SCT 220 Intro. to Telecommunications

Electives: Five of the following: SCT 221 Basic Audio Production SCT 222 Basic Video Production SCT 223 The Art of Film SCT 224 Mass Media SCT 321 Broadcast Journalism SCT 322 Advanced Video Production SCT 362 Mass Communications Law

## 4. Journalism Minor

Required: SCT 260 Basic Newswriting

Electives: Five of the following: SCT 224 Mass Media SCT 254 Publication Design SCT 261 The American Newspaper 5. Theater Arts Minor Required: SCT 143 Theatrical Production

Electives: Five of the following: SCT 142 Speech for the Stage SCT 240 Fundamentals of Play Structure and Criticism SCT 241 Acting I SCT 242 Acting II SCT 340 Theater History I SCT 341 Theater History II SCT 342 Lighting for the Stage SCT 344 Scene Design SCT 345 Directing I SCT 346 Directing II Page 223

## The Major

## **Departmental Requirements:**

All students choosing to major in Speech, Communications, and Theater Arts must fulfill specific departmental requirements. These courses contain skills, theory, analysis, performance, writing, and research. They are as follows:

- SCT 100 Modes of Expression
- SCT 101 Fundamentals of Speech
- SCT 102 Principles of Communication
- (Not required of Theater Arts concentrators.) SCT 324 Communication Research Methods
- (Not required of Theater Arts concentrators.) SCT 397 Senior Seminar

The Department also has a six-hour writing requirement for all communication majors and a dramatic literature requirement for theater majors.

## **Concentration Requirements:**

Each concentration is described and outlined below.

## Interpersonal and Organizational Communication

This concentration introduces students to the theory, skills, and application of face-to-face communication in interpersonal, small group, organizational, and public settings. Its theoretical foundation is primarily in the behavioral sciences. Communication is viewed as an ongoing process, knowledge of which permits the student to apply his or her skills to a variety of contexts.

SCT 360 Editing and Advanced Newswriting SCT 361 Feature Writing SCT 362 Mass Communications Law

## The College of Arts and Sciences

All students concentrating in Interpersonal and Organizational Communication will choose five courses (15 credits) from the following:

- SCT 202 Interpersonal Communication
- SCT 203 Small Group Communication
- SCT 206 Business and Professional Speaking
- SCT 252 Internship
- (Only three credits of internship may count in the concentration.) SCT 301 Persuasion
- SCT 302 Public Relations
- SCT 303 Organizational Communication

## Writing Requirement (6 credits):

- SCT 260 Basic Newswriting and either
- ENG 201 Advanced Composition or
- ENG 202 Technical Writing

### **Public Relations Track:**

The Public Relations Society of America has developed guidelines for undergraduates wishing to enter the field of public relations. Students should consult an advisor within the department to determine what additional courses will be necessary to meet these guidelines.

## **Rhetoric and Public Communication**

This concentration introduces students to the history, principles, and practices of traditional rhetoric. The concentration derives it theoretical foundation from the works of classical rhetoric. It is a performance-centered concentration in which students research, write, deliver, and analyze public discourse. Each course emphasizes adaptation of messages to diverse audiences, usually found in formal, deliberative settings.

All students concentrating in Rhetoric and Public Communication will choose five courses (15 credits) from the following:

- SCT 201 Advanced Public Speaking
- SCT 203 Small Group Communication
- SCT 204 Argumentation and Debate
- SCT 206 Business and Professional Speaking
- SCT 252 Internship
- (Only three hours of internship may count in the concentration.) SCT 300 Rhetorical Criticism SCT 301 Persuasion
- SCT 302 Public Relations

## Writing Requirement (6 credits):

- ENG 201 Advanced Composition and
- SCT 260 Basic Newswriting or
- SCT 225 Media Criticism

## **Political Communication Track:**

## The College of Arts and Sciences

**Concentration Selection** 

**Core Requirements** 

**Major Elective** 

Free Electives

Free Electives

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Second Semester

**Recommended Course Sequences for** Interpersonal and Organizational Communication and **Rhetorical and Public Communication Concentrations** 

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
SCT 100 Modes of Expression	3	SCT 102 Principles of Communication	3
SCT 101 Fundamentals of Speech	3	Core Requirements	9
Core Requirements	6	PE 100 Activity	0
PE 100 Activity	0		
	15		15
Third Semester		Fourth Semester	
Concentration Selection	3	Concentration Selections	6
Writing Requirement	3	Writing Requirement	3
Core Requirements	9	Core Requirements	6
PE 100 Activity	0	PE 100 Activity	0
	15		15

#### **Fifth Semester Sixth Semester** 3 **Concentration Selection** Internship (See Advisor) 6 Core Requirements (If necessary) 3 3 **Free Electives**

#### **Eighth Semester** Seventh Semester SCT 324 Communication Research 3 Internship (See Advisor) 3 **Concentration Selection** 3 Methods 3 3 SCT 397 Senior Seminar Major Electives 9 6 Free Electives 15 15

## **Telecommunications**

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This concentration introduces students to the history, economics, regulations, and functions of the radio, television and cable industries. It provides students with a combination of skills, performance, and theory that will enable graduates to seek employment in those industries. In addition, students should be competitive in advertising, marketing, and research firms as well as audio/video media.

Students who are interested in careers in political communication must satisfy the fifteen-credit concentration requirement, and take three political science courses at the 200 level or above. These courses should be chosen in consultation with an advisor.

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## The College of Arts and Sciences

All students concentrating in Telecommunications must take the following course: SCT 220 Introduction to Telecommunications

All students concentrating in Telecommunications will then choose five courses (15 credits) from the following:

SCT 221 Basic Audio Production

- SCT 222 Basic Video Production SCT 223 The Art of Film
- SCT 224 Mass Media
- SCT 252 Internship

(Only three credits of internship may count in the concentration.) SCT 321 Broadcast Journalism

- SCT 322 Advanced Video Production
- SCT 362 Mass Communications Law

## Writing Requirement (6 credits):

SCT 225 Media Criticism or SCT 260 Basic Newswriting and ENG 201 Advanced Composition

## **Recommended Course Sequence for Telecommunications Concentration**

3

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### **First Semester**

ing 101	Composition I
CT 100	Modes of Expression
CT 101	Fundamentals of Speech
ore Req	uirements
E 100 A	Activity

## Third Semester

SCT 102 Principles of Communications	3
Concentration Selection	3
Writing Requirement	3
Core Requirements	6
PE 100 Activity	0

**Fifth Semester** 

**Concentration Selection** 

**Core Requirements** 

**Major Electives** 

## **Fourth Semester Concentration Selections** Writing Requirement **Core Requirements**

Eng 102 Composition II

**Core Requirements** PE 100 Activity

# PE 100 Activity

## **Sixth Semeste Concentration Selection** Internship (See Advisor) Core Requirements (If necessary)

Second Semester

SCT 220 Intro. to Telecommunications

## The College of Arts and Sciences

Internship (See Adviso

**Concentration Selection Major Electives** 

Free Electives

Seventh Semester		Eighth Semester	
o (See Advisor)	3	SCT 324 Comm. Research Methods	3
ation Selection	3	SCT 397 Senior Seminar	3
ctives	3	Free Electives	9
tives	6		
	15		15

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## Journalism

This concentration is designed to prepare students to write crisp, concise, lively prose for mass audiences; to utilize, interpret, and analyze primary sources; and to offer thought-provoking commentary on contemporary issues and current events. Students are strongly advised to pursue a minor in English, Political Science, History or another area, with departmental approval.

All students concentrating in Journalism will choose five courses (15 credits) from the following:

- SCT 224 Mass Media
- SCT 254 Publication Design
- SCT 260 Basic Newswriting (may not be used to fulfill concentration requirement if already used to fulfill writing requirement)
- SCT 261 The American Newspaper
- SCT 360 Editing and Advanced Newswriting
- SCT 361 Feature Writing SCT 362 Mass Communications Law

## Writing Requirement (6 credits):

**Concentration Selection** 

## SCT 260 Basic Newswriting

ENG 201 Advanced Composition

## **Recommended Course Sequence for Journalism Concentration**

	3	First Semester		Second Semester
	0	Eng 101 Composition I	3	Eng 102 Composition II
		SCT 100 Modes of Expression	3	SCT 102 Principles of Communication
	-	SCT 101 Fundamentals of Speech	3	Core Requirements
	15	Core Requirements	6	PE 100 Activity
		PE 100 Activity	0	SCT 141 These Eaborains (must be
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r			15	
1200	2			
	3	Third Semester		Fourth Semester

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Concentration Selections
Writing Requirement



The College of Arts and Sciences

15

15

**Sixth Semester** 

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## **Recommended Course Sequence for Theater Arts Concentration**

First Semester		Second Semester
Eng 101 Composition I	3	Eng 102 Composition II
SCT 100 Modes of Expression	3	SCT 101 Public Speaking
SCT 143 Production	3	SCT 142 Speech for the Stage
SCT 241 Acting Lor Core Requirement	3	Core Requirements
Core Requirements	3	SCT 141 Theater Laboratory
PE 100 Activity	0	PE 100 Activity
Sector and the sector of the	45	

## Fourth Semester

Third Semester		Fourth Semester
SCT 240 Play Structure and Criticism	3	SCT 334 Scene Design I
SCT 241 Acting Lor Core Requirement	3	SCT 242 Acting II or Theater Elective
SCR 342 Lighting for the Stage	3	ENG 152 World Literature II
ENG 151 World Literature I	3	Core Requirements
Core Requirements	3	SCT 141 Theater Laboratory
SCT 141 Theater Laboratory	1	PE 100 Activity
PE 100 Activity	0	
	10	

**Fifth Semester Concentration Selection Concentration Selection** Core Requirements Internship (See Advisor) 6 Core Requirement (If necessary) **Major Electives** 3 Free Electives 3

15

## **Seventh Semester**

Internship (See Advisor) 3 **Concentration Selection** 3 Major Electives 3 **Free Electives** 6 15

# Free Electives **Eighth Semester**

## SCT 324 Comm. Research Methods SCT 397 Senior Seminar Free Electives

## **Theater Arts**

Students who choose to concentrate in Theater Arts are trained in theater practice, dramatic literature, and communication skills. Both through their own theatrical pursuits and through the critical study of theater and its place in our culture, students are urged to discover how the creative process works; they will be provided opportunities for the development of skills in performance, production, design, and criticism. Students are strongly advised to take a foreign language as a part of the Core and to fulfill the fine arts requirement outside of Theater Arts.

All Theater Arts concentrators must take the following:	Fifth Semester		Sixth Semester	
SCT 240 Fundamentals of Play Structure and Criticism	SCT 340 Theater History I	3	SCT 341 Theater History II	3
SCT 340 Theater History I	SCT 345 Directing I	3	SCT 345 Directing II or Theater Elective	3
and any two of the following:	Dramatic Literature Requirement	3	Core Requirements	9
SCT 223 The Art of Film or SCT 225 Media Criticism	Core Requirements	0	SGT 141 Theater Laboratory	17
ENG 321 Early English Drama	SUI 141 Theater Laboratory			16
ENG 325 Shakespeare		16		10
ENG 341 Restoration and Eighteenth Century Drama				
ENG 374 Modern Drama	A second second and the first			
ENG 384 American Drama				
In addition, all Theater Arts concentrators must take the following courses:	Seventh Semester		Eighth Semester	
SCT 141 Theater Laboratory (must be repeated six times)	SCT 397A Senior Seminar	3	SCT 348 Workshop or	3
SCT 142 Speech for the Stage	Dramatic Literature Requirement	3	Theater Elective	2
SCT 143 Production	Core Requirement	3	SCT 252 Internship of Free Elective	6
SCT 241 Acting I	SCT 252 Internship or Free Elective	3	FIGE EIGENVES	0
SCT 342 Lighting for the Stage	SCI 141 Theater Laboratory	_		
SCT 344 Scene Design		13		12
SCT 345 Directing	and the second se			

Finally, students must complete an additional six credits in SCT. Students should select these courses in consultation with an advisor. Students applying for secondary school certification must take SCT 348 and one other course.

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Three credits

Three credits

**Three credits** 

Three credits

One credit

**Three credits** 

Three credits

One to two credits

Three credits

Three credits

### The College of Arts and Sciences

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Three credits

Three credits

### SCT 100. MODES OF EXPRESSION

An introduction to the methodologies of speech, communications, and theater through an examination of interdisciplinary treatment of a particular topic or issue. Team taught by members of the department. Topic changes yearly. Required of all department majors, course should be taken freshman year. Offered every fall semester.

## SCT 101. FUNDAMENTALS OF PUBLIC SPEAKING

Principles of study, application, and evaluation of public speaking. Emphasis will be upon meeting the needs of students through individualized instruction in oral communication settings. The course is taught each semester. (Formerly Speech 101)

### SCT 102. PRINCIPLES OF COMMUNICATION

A study of the theory and process of communication. Required of all department majors. Taught every spring semester. (Formerly Communication 101)

## SCT 140. APPROACH TO THEATER

Attention will be directed to the importance of the dramatic imagination in reading and viewing plays, with the objective of developing a critical appreciation of the theater. Lecture, discussion, demonstration, films, college theater performances. (Formerly Th. Arts 101)

## SCT 141. THEATER LABORATORY

A study, through the application of various techniques of different facets of theater such as auditioning, costuming, fencing, make-up, masks, mime, scene study, soliloquy, stage combat, textual analysis, and voice. Guest lecturers, master classes, workshops. Required of all Theater Arts concentrators every semester. May be repeated for a total of six hours.

### SCT 142. SPEECH FOR THE STAGE

Instruction and exercises in vocal development for the stage, including diction, delivery, and interpretation. Laboratory sessions. (Formerly Th. Arts 131)

### SCT 143. THEATRICAL PRODUCTION

An exploration of the many physical facets of theatrical production by introducing the student to the process of translating the concept of a design into physical actuality and of adapting a production to the requirements of a stage. Class and workshop. (Formerly Th. Arts 141)

## SCT 144. DEPARTMENT PRACTICUM

A - Debate and Forensics, B - Theater Production, C - WCLH Radio, D - The Beacon. The Department Practicum may be taken for one to two credits per semester with the total note exceed six. Students may earn credit for major roles and positions of major responsibility in the above cocurricular activities. Credit for participation in these activities is optional, and voluntary participation (without credit) is also encouraged. The department, through the adviser or instructor of the activity, has the authority to approve or reject any contract for credit under this designation. Credits earned are applicable toward graduation but do not count toward the requirements of any concentration in SCT.

## SCT 201. ADVANCED PUBLIC SPEAKING

Inquiry into the practice and principles of speech composition and presentation. Detailed analysis of the areas of invention, arrangement, style, and delivery, and an introduction to speech criticism. (Formerly Speech 201)

Prerequisite: Sct 101 or consent of instructor. Course taught spring semester, every other year.

### SCT 202. INTERPERSONAL COMMUNICATION

The course focuses on interpersonal communication theory and its application to improving the student's interpersonal skills in managing conflict, negotiating, listening, interviewing, and the development of relationships. (Formerly Communication 201) pants. Course taught spring semester, every other year. (Formerly Communication 202) Prerequisite: Sct 102. SCT 204. ARGUMENTATION AND DEBATE Three credits

The course is designed to expand the student's knowledge of the theories and types of small

group communication. Emphasis on the task, leadership, and interpersonal skills of partici-

Training in the fundamentals of argumentation and debate, with practice in gathering and organizing evidence and support materials. Course taught every other fall semester. (Formerly Speech 205)

Prerequisite: Sct 101 or consent of instructor.

SCT 203. SMALL GROUP COMMUNICATION

## SCT 205. ORAL INTERPRETATION

An investigation of literature that combines analysis with interpretive oral performance. Spring semester, every third year. (Formerly Speech 206)

## SCT 206. BUSINESS AND PROFESSIONAL SPEAKING

**Three credits** Course will concentrate on communication theory as applied to business and professional settings. Students will make several oral presentations and participate in interviewing and conferences. Course taught fall semester, every other year. (Formerly Speech 202)

### SCT 207. VOICE AND DICTION

Three credits A study of voice production and articulation, analysis of regional speech differences and standards.

## Prerequisite: Sct 101.

#### SCT 220. INTRODUCTION TO TELECOMMUNICATIONS Three credits

Study of the radio, television, and cable industries. Emphasis on their development as public and commercial institutions. Consideration of economic and regulatory issues affecting programming. (Parts of the course were formerly contained in Communication 240 and Communication 245)

Prerequisite: Sct 100 and Sct 102. Taught every spring semester.

### SCT 221. BASIC AUDIO PRODUCTION

### **Three credits**

A study of the principles and techniques of audio production. A special emphasis is placed on radio-related issues, skills, and projects. Consideration of the sound media as tools of artistic expression. Lecture and laboratory. (Parts of this course were formerly contained in Communication 240)

Prerequisite: Sct 220. Taught every second fall semester.

## SCT 222. BASIC VIDEO PRODUCTION

## Three credits

A study of the principles and techniques of video production. A special emphasis is based on the utilization of these techniques in a broadcast setting. Included will be: camerawork, editing, switching, and use of remote recording equipment. Fee: \$20. (Formerly Communication 246) Taught every fall semester.

### SCT 223. THE ART OF FILM

Three credits An introduction to the history, aesthetics, and techniques of cinematic art through a study of representative films by Bergman, Chaplin, Eisenstein, Griffith, Hitchcock, Welles, and others. Screenings

## SCT 224. MASS MEDIA

## **Three credits**

A study of the mass media and their role in contemporary society. Course taught every other fall er (Formerly Communication 205)

Prerequisite: Sct 102. Course taught every fall semester.	Prerequisite: Sct 100 and Sct 102.

## The College of Arts and Sciences

Three credits

Three credits

Three credits

Three to six credits

Three credits

Three credits

**Three credits** 

Three credits

**Three credits** 

### SCT 225. MEDIA CRITICISM

Students analyze and evaluate all forms of mass media content - visual and verbal. Written analysis of primary texts: plays, scripts, essays, short stories, newspaper, and magazine articles, as well as radio and television programming, speeches, and films. Critical principles will be applied.

## SCT 240. FUNDAMENTALS OF PLAY STRUCTURE

AND CRITICISM Three credits A study of critical techniques in interpreting plays and the application of such techniques to evaluating plays for stage presentation. (Formerly Th. Arts 201) Prerequisite: Eng 102 and Sct 100.

### SCT 241. ACTING I

Basic acting techniques. Creating a variety of characters for the stage through the use of vocal interpretation, physical movement, improvisation, and theater games. (Formerly Th. Arts 211)

### SCT 242. ACTING II

An introduction to the major theories, aims, and styles of acting through performing various roles and monologues in selected dramatic scenes. (Formerly Th. Arts 212) Prerequisite: Sct 241.

## SCT 252. INTERNSHIP

A supervised program of work and study in any of the concentrations. Permission of the department is required.

## SCT 254. PUBLICATION DESIGN

Familiarization with the tools, design elements, and production processes of the graphic artist. The value and contribution of the graphic arts to society will be discussed. Students will experience methods and techniques currently being practiced in the graphic design field. It is suggested that students without an art background take Art 103 prior to this course. (Same as An 254)

## SCT 260. BASIC NEWSWRITING

Fundamentals of newsgathering, newswriting, and news judgment for all media; study of news sources; fieldwork, research, and interview techniques. Fee: \$20. (Formerly Communication 211)

Prerequisite: Eng 101-102 and Sct 100. Offered every fall semester.

## SCT 261. THE AMERICAN NEWSPAPER

A survey of contemporary newspapers emphasizing the analysis of their editorial content. Includes an examination of alternative newspapers.

Prerequisite: Sct 100 and Sct 102. Offered every other spring semester.

## SCT 300. RHETORICAL CRITICISM

Theories from classical to contemporary will be applied to the analysis of the spoken word. Emphasis on speech writing and criticism. (Formerly Speech 301) Prerequisite: Sct 101. Spring semesters, off-numbered years.

### SCT 301. PERSUASION

Study and practice of persuasive speaking. General theories of persuasion, the role of persuasion in a democratic society, and an introduction to modern experimental research in the field. (Formerly Speech 302)

Prerequisite: Sct 101. Fall semesters, odd-numbered years.

## The College of Arts and Sciences

SCT 302. PUBLIC RELATIONS **Three credits** An introduction to the fundamentals of public relations practice, including program planning and evaluation, working with the media, writing for PR, and coordinating special events and functions. (Formerly Communication 215) Prerequisite: Sct 202 and Sct 260. Fall semesters.

## SCT 303. ORGANIZATIONAL COMMUNICATION

Course focuses attention on traditional and modern concepts of communication channels in simple and complex organizations. Considerable attention is given to interviewing and conducung communication audits.

Prerequisite: Sct 202. Spring semesters, even-numbered years.

### SCT 321. BROADCAST JOURNALISM

**Three credits** 

**Three credits** 

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A study of the principles and methods of broadcast journalism. (Formerly Communication 241)

Prerequisite: Sct 100. Course taught every other spring semester.

## Three credits

SCT 322. ADVANCED VIDEO PRODUCTION A study of the principles and techniques of program production. Scripting, producing, and directing are subjects covered extensively by this course. Each student will produce and direct a half-hour final project.

Prerequisite: Sct 222. Course taught every other spring semester.

#### SCT 324. COMMUNICATION RESEARCH METHODS **Three credits**

## Study of research methods in various areas of communication. Emphasis on ability to research literature and critique a research design. Consideration of content analysis and empirical design.

Prerequisite: Sct 100 and 102, completion of departmental writing requirement, and junior/ senior standing.

### **Three credits**

SCT 340. THEATER HISTORY I A survey of the historical development and background of theatrical art from ancient times through the seventeenth century. (Formerly Th. Arts 331)

### **Three credits**

SCT 341. THEATER HISTORY II A survey of the historical development and background of theatrical art from the eighteenth century to the present. (Formerly Th. Arts 332) Prerequisite: Sct 340.

## SCT 342. LIGHTING FOR THE STAGE

**Three credits** Principles of lighting and the use of these principles in either simple or sophisticated lighting systems. Students will work with instruments and equipment of the lighting technician. Class and workshop. (Formerly Th. Arts 343) Prerequisite: Sct 141.

## SCT 344. SCENE DESIGN

**Three credits** The nature and function of scenic art with emphasis on contemporary theories and techniques. (Formerly Th. Arts 344) Prerequisite: Sct 141.

## SCT 345. DIRECTING I

An introduction to the principles of directing including play selection, composition, casting, blocking, and rehearsing. Class and workshop. (Formerly Th. Arts 351) Prerequisite: Sct 141, 201, 211, or departmental permission.

## **Three credits**



## The College of Arts and Sciences

Three credits

One to three credits

**Three credits** 

Three credits

**Three credits** 

Three credits

One to three credits

Three credits

Three credits

The College of Arts and Sciences

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## SPEECH PATHOLOGY

Professor J. Bellucci, Chairman; Professor Emeritus Hammer; Professors Darte, Fahmy; Associate Professors Johnson, Placek; Assistant Professors B. Bellucci, Ginsburgh, G. Meyers; Instructor Polacheck.

## Total minimum number of credits required for a B.A. degree — 125.

The Bachelor's Degree in Speech-Language Pathology provides a firm foundation for understanding pathologies of speech-language and their remediation. Upon completion of the program, students will be eligible for a Pennsylvania State Department of Education teaching certificate. The Speech-Language Pathology curriculum at Wilkes College is designed to prepare students for intensive study on the graduate level.

## Recommended Course Sequence for a Degree in Speech Pathology

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Psy 101 General Psychology	3	Core Requirements	9
Core Requirements	9	CS 115 Survey of Computing	3
PE 100 Activity	0	& Data Processing	
		PE 100 Activity	0
	15		15
Third Semester		Fourth Somestor	
Ed tot Drastiaum		Fourth Semester	
Ed 101 Practicum	1	Ed 102 Practicum	1
Ed 201 Intro. to Education	3	Ed 202 Educational Psychology	3
Spi 201 Speech-Language Pathology	3	Spi 202 Speech & Language	3
Core Requirements	0	Development	0
PSy 325 Exceptional Individual	3	Core Requirements	6
PE IOU ACTIVITY	0	Psy 221 Developmental Psychology	3
	_	PE 100 Activity	
	16		16
Fifth Semester		Sixth Semester	
Spl 301 Speech Science	3	Spl 304 Advanced Speech	3
Spl 303 Phonetics	3	Language Pathology	
Spl 305 Audiology & Hearing Science	3	Spl 306 Auditory Habilitation & Rehabilitation	3
Core Requirements	3	Spl 308 Language Disorders	3
Mth 150 Elementary Statistics	3	in Children	
Ed 325 Methods & Materials of Instruction Techniques	3	Spl 310 Principles of Case Management	3
1 5 11 101111			

## Methods of interpreting and performing plays for young audiences. Class projects will evolve into theatrical performances for children.

tions, and direct a one-act play. (Formerly Th. Arts 352)

Prerequisite: Sct 143 and 241, or permission of the department.

## SCT 348. THEATER WORKSHOP

SCT 347. CHILDREN'S THEATER

SCT 346. DIRECTING II

Prerequisite: Sct 351.

An opportunity to prepare the full production of a short play for an audience. Working closely with members of the faculty, the student will cast and direct the play and supervise the lighting, design, and construction for the production. Required for certification in education. (Formerly Th. Arts 380)

A study of special problems in directing. Students will prepare a prompt book, critique produc-

Prerequisite: Permission of the department.

## SCT 360. JOURNALISM: EDITING AND ADVANCED NEWSWRITING

A study of specialized reporting and an introduction to news editing. Prerequisite: Sct 260.

## SCT 361. FEATURE WRITING

A study of feature articles for newspapers, syndicates, magazines, and specialized publications. Practice in research, interviewing, and writing. Prerequisite: Sct 160.

## SCT 362. MASS COMMUNICATION LAW

Current legal problems, theory of controls in journalism, television, and radio; libel, copyright, privacy law, and other legal issues affecting the mass media. A case study approach will be used.

Prerequisite: Sct 100 and 102.

## SCT 395-396. INDEPENDENT RESEARCH

Independent study and research for advanced students in speech, communication, and theater arts programs under the direction of a staff member. A research paper at a level significantly beyond a term paper is required.

### SCT 397A. SENIOR SEMINAR/THEATER

Discussion, research, and exploration of a selected topic in conjunction with a departmental theater production. Presentations and a research project. Required of all Theater Arts concentrators. (Formerly Th. Arts 397)

## SCT 397B. SENIOR SEMINAR/COMMUNICATIONS

An in-depth investigation of current research and issues in communication. Research paper required. Open to all SCT majors. (Formerly Communication 397) Prerequisite: Junior/senior standing.

## SCT 398. TOPICS One to three credits

A study of topics of special interest not extensively treated in regularly offered courses.



## The College of Arts and Sciences

## The College of Arts and Sciences

for speech-language disorders.

tals.

**Three credits** 

Three credits

**Three credits** 

Three credits

SPL 381. FIELD PRACTICUM

**PSYCHOLINGUISTICS** 

SPL 353. DIAGNOSIS OF MENTALLY AND

SPL 380. PROFESSIONAL SEMESTER IN

SPEECH-LANGUAGE PATHOLOGY

SPL 401. INTRODUCTION TO LINGUISTICS AND

PHYSICALLY HANDICAPPED

in educational planning for these individuals.

Page 237

**Three credits** 

**Fifteen credits** 

**Three credits** 

**Three credits** 

Seventh or Eighth SemesterSpl 401 Intro. to Linguistics3& Psycholinguistics3Sp 101 Fundamentals of Speech3Ed 321 The Teaching of Reading3Free Electives6

Seventh or Eighth Semester Spl 380 Professional Semester 15

## SPL 201. INTRODUCTION TO SPEECH-LANGUAGE PATHOLOGY

PATHOLOGY Three credits Introduction to the field of speech and hearing. Includes overview of speech/language/hearing disorders, their etiologies, treatment, and psychological and social foundations of speech-language pathology.

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## SPL 202. SPEECH AND LANGUAGE DEVELOPMENT

Study of the pattern of speech and language development and consideration of theoretical explanations of this development.

## SPL 301. SPEECH SCIENCE

Anatomy and physiology of systems basic to speech/language/hearing functions and introduction to electronic instrumentation used in clinical practice.

### SPL 303. PHONETICS

Introduction to phonology, intensive study of the International Phonetic Alphabet, and transcription training.

SPL 304. ADVANCED SPEECH-LANGUAGE PATHOLOGY Three credits Comprehensive study of disorders of speech/language/hearing, their causes, and remediations.

## SPL 305. AUDIOLOGY AND HEARING SCIENCE

Study of audiology and hearing science, audiometrics, and consideration of topics such as hearing conservation and industrial audiology.

**SPL 306. AUDITORY HABILITATION AND REHABILITATION** Three credits Study of methods of habilitation and rehabilitation for hearing-impaired persons and alternative modes of communication; consideration of hearing impairment as it affects the educational process and educational decisions.

SPL 308. LANGUAGE DISORDERS IN CHILDREN Three credits

Study of language impaired populations including mentally retarded, autistic, linguistically and developmentally delayed, aphasic, and learning disabled, the patterns of their language impairments, and remediation.

SPL 310. PRINCIPLES OF CASE MANAGEMENT Three credits Identification of disorders, testing, diagnosis, and theory of delivery of treatment services; consideration of counseling parents and communication with other professionals; consideration of the effects of communication disorders on a student's total educational program.

## SPL 325. METHODS AND MATERIALS OF INSTRUCTIONAL TECHNIQUES FOR EXCEPTIONAL CHILDREN

TECHNIQUES FOR EXCEPTIONAL CHILDREN Three credits Examination of instructional materials for use with exceptional children and study of instructional techniques for providing effective educational experiences.



Study of mental and physical handicaps and in-depth exploration of diagnostic techniques used

Examination of professional problems common to all teachers; provides observation and practice of treatment methods for speech-language disorders and practice in development of IEPs

Supervised field observation of individuals with speech and language disorders and experience in therapeutic planning; field assignments will be made in public schools, clinics, and hospi-





# Personnel of the College

Board of Trustees Administration Faculty Page 239



## **Board of Trustees**

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## Administration

CHRISTOPHER N. BREISETH (1984), President B.A. California, Los Angeles, B. Litt. Oxford, Ph.D. Cornell

Page 241

, Vice President for Academic Affairs

RICHARD F. CHARLES, Vice President for College Advancement

PAUL A. O'HOP, SR., Vice President for Business Affairs and Auxiliary Enterprises

CHERYL SCALESE, Director of Institutional Research

## Vice President for Academic Affairs

\_, Vice President for Academic Affairs

ROBERT J. HEAMAN (1969), Associate Dean of Academic Affairs B.A. Detroit, M.A., Ph.D. Michigan

JOHN F. MEYERS (1967), Associate Dean of Academic Affairs B.A. Minnesota, M.A. Clark

PAUL S. ADAMS (1979), Associate Dean of Student Affairs B.A., M.Ed. Wilkes

DORIS E. BARKER (1965), Registrar Wyoming Seminary Dean's School of Business

BARBARA BELLUCCI (1984), Director of Microcomputer Education, Regional Computer Resource Center B.S., M.S. Wilkes, Ed.D. Temple

JOSEPH T. BELLUCCI (1967), Project Director of Title III B.S. Scranton, M.Ed., Ed.D. Lehigh

JOSEPH J. CHMIOLA (1979), Director of the Small Business Institute B.A., M.B.A. Wilkes

EUGENE S. DOMZALSKI (1969), Director of Career Services B.S. Wyoming, M.S. Wilkes

MAHMOUD H. FAHMY (1968), Dean of Graduate Studies and Continuing Education B.A. Alexandria, Egypt, M.A. Columbia, Ph.D. Syracuse

JUDITH FREMONT (1985), Director of Act 101 B.S. Temple, M.S. Nazareth College of Rochester

CHERYL GIBSON (1977), Director of Cooperative Education B.A. Wilkes

ANNE A. GRAHAM (1979), Director of Project Upward Bound B.A., M.S. Wilkes

PATRICIA M. HEAMAN (1966), Director of the Writing Laboratory B.A. Wilkes, M.A., Ph.D. Pennsylvania



- JOSEPH H. KANNER (1949), Director of Testing Service B.A. Bucknell, M.A. New School for Social Research
- BARBARA KING (1980), Director of Evening, Summer, & Weekend College B.S. Wilkes
- BRADFORD L. KINNEY (1973), Director of the Campus Radio Station B.A. Florida Southern, M.A. Indiana, Ph.D. Pittsburg

JANE LAMPE-GROH (1969), Dean of Student Affairs B.A. Rosary, M.A. Michigan, M.Ed. Virginia

- FREDERICK A. LOHMAN (1984), Director of Small Business Development Center B.A. Wilkes
- RACHAEL L. LOHMAN (1981), Director of Financial Aid B.S. Wilkes, M.Ed. Bloomsburg
- THOMAS J. LYNOTT (1981), Director of Anthracite and Community Development Institute B.S., M.S. Scranton
- P. ROBERT PAUSTIAN (1984), Director of the Library B.A., M.A. Missouri, M.A. Kansas

JOHN G. REESE (1955), Director of Athletics B.S., M.Ed. Pennsylvania State

RALPH B. ROZELLE (1962), Dean of Health Sciences B.S. Wilkes, Ph.D. Alfred

- ANN W. RUSSIN (1984), Director of the Nursing Learning Laboratory B.S. Cornell, M.S. Misericordia
- MARK F. SOWCIK (1986), Director of Campus Counseling Service B.A. King's, M.A. Marywood

MARY SUPEY (1984), Director of Health Services B.S. Wilkes

BERNARD J. VINOVRSKI (1986), Dean of Admissions B.S., M.S., M.B.A. Wilkes

AMY WIEDEMER (1985), Director of Student Activities B.A. University of Pittsburgh-Johnstown, M.S. Indiana University of Pennsylvania

JOHN P. WHITBY (1947), Assistant Director of Act 101 Program B.S. Bloomsburg, M.S. Columbia

DEBRA ZEHNER (1981), Director of the Academic Support Center B.S., M.S. Wilkes

## Vice President for College Advancement

Page 243

RICHARD F. CHARLES (1984), Vice President for College Advancement A.B. Franklin and Marshall

SANDRA A. BEYNON (1982), Director of Foundations and Grants Management B.S. Scranton, M.B.A. Wilkes

JOHN J. CHWALEK (1946), Special Assistant for College Advancement B.S. East Tennessee, M.A. Columbia

BETSY DELL CONDRON (1979), Director of Community Relations B.S. Skidmore, M.S. Wilkes

ALFRED S. GROH (1947), Special Assistant for Cultural Activities B.A. Syracuse, M.A. Columbia

THOMAS B. HADZOR (1986), Executive Director of Development B.A. Muhlenburg, M.A. Michigan State

THOMAS J. LYNOTT (1981), Special Assistant for Government Relations B.S., M.S. Scranton

JANE MANGANELLA (1975), Director of Public Relations

JUDITH HANSEN O'TOOLE (1982), Director of Sordoni Art Gallery B.A. Minnesota, M.A. Pennsylvania State

GEORGE F. RALSTON (1946), Special Assistant for Alumni Relations B.A. North Carolina, M.A. Columbia

ANTHONY J. SHIPULA, II (1985), Director of Alumni Relations B.S. Wilkes

## Vice President, Business Affairs and

**Auxiliary Enterprises** 

PAUL A. O'HOP, SR., (1985), Vice President, Business Affairs and Auxiliary Enterprises

B.S., M.B.A. George Washington

JOSEPH J. CHISARICK (1970), Director, Financial Management B.S., M.B.A. Wilkes, C.P.A. State of Pennsylvania

JOHN A. KOCH (1976), Director, Academic Computing B.S. Bucknell, M.S., Ph.D. Illinois

EUGENE L. MANGANELLO (1973), Director, Human Resources Management/ Bookstore Manager B.A. Wilkes

ROBERT COLLINS (1986), Director, Computer Support Center B.S. East Stroudsburg



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Dean, College of Arts and Sciences

Associate Dean of Academic Affairs

Vice President for Academic Affairs

President

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Music

Dean, School of Business and Economics

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Director of Health Services Administration Program

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## Page 245

Dean, School of Engineering and Physical Sciences

Associate Dean, School of Engineering and Physical Sciences

Departments Earth and Environmental Sciences Engineering Physics

Programs Electrical Engineering Environmental Engineering **Engineering Management** Materials Engineering Medical and Health Physics Teaching Certification: Earth and Space Science/Physics

Admissions and Standards **Graduate Studies** 





## Faculty

In alphabetical order, with date of appointment following the name.

\* \* \* \* \* \* \* \* \* \* \* \* \* \*

CHRISTOPHER N. BREISETH (1984), Professor of History/President B.A. California, Los Angeles, B. Litt. Oxford, Ph.D. Cornell

\_, Vice President for Academic Affairs

BARBARA D. ANDERSON (1986), Instructor of English B.A. SUNY at Stony Brook, M.A. Purdue

CLAUDE W. ANDERSON, III, (1981), Assistant Professor of Mathematics/ Computer Science

B.S. CIT, M.S., Ph.D. Illinois at Urbana

KATHERINE K. ANSELMI (1982), Assistant Professor of Nursing B.A., B.S. Wilkes, M.S. Pennsylvania

AHMAD ARMAND (1986), Associate Professor of Engineering B.Sc., M.Sc. Shiraz University, Iran, Ph.D. University of Southern California

VIJAY K. ARORA (1985), Associate Professor of Engineering B.Sc., M.Sc. Kurukshetra University (India), M.S. Western Michigan, M.S., Ph.D. Colorado

PAMELA S. BAKER (1983), Assistant Professor of Nursing B.A., B.S. Wilkes, M.S. Pennsylvania

- ASHIM K. BASU (1987), Professor of Health Administration B.A., M.A. Jadavpue University, Calcutta, M.A., Ph.D. Claremont Graduate School
- ANNE HEINEMAN BATORY (1987), Assistant Professor of Business Administration B.A. Wilkes, M.S., Ph.D. Maryland
- KENNETH BAUZON (1986), Assistant Professor of History/Political Science B.A. Silliman University, Phillipines, M.A., Ph.D. Duke University
- SUSAN BEHUNIAK-LONG (1985), Assistant Professor of History and Political Science B.A. St. Bonaventure, M.A., Ph.D. SUNY, Albany

FREDERIC E. BELLAS (1961), Professor of Physics B.S., M.S., Ph.D. Pennsylvania State

JOSEPH T. BELLUCCI (1967), Professor of Education B.S. Scranton, M.Ed., Ed.D. Lehigh

LOUISE MCNERTNEY BERARD (1980), Associate Professor of Mathematics/ Computer Science B.S. King's, Ph.D. Brown

JAMES P. BERG (1965), Assistant Professor of History

Page 247

TOM BIGLER (1986), Professor of Communications

DAVID G. BILLINGS, Professor of Aerospace Studies B.S. Louisville, M.S. Arkansas

ROBERT W. BOHLANDER (1979), Associate Professor of Psychology B.A. Lebanon Valley, Ph.D. Rochester

JAMES J. BOHNING (1959), Professor of Chemistry B.S. Valparaiso, M.S. New York, Ph.D. Northeastern

KURT PALMER BOTTJER (1986), Assistant Professor of Biology B.S., Ph.D. Notre Dame, M.A. University of California

KENNETH A. BROADT (1980), Associate Professor of Accounting B.S. Bloomsburg, M.S. Bucknell, C.P.A. State of Pennsylvania

BRUCE W. BROWN (1978), Associate Professor of Sociology/Anthropology B.A. SUNY, Plattsburgh, M.A., Ph.D. New Hampshire

JEROME W. CAMPBELL (1979), Assistant Professor of Music B.M., M.M. Boston

JAMES MICHAEL CASE (1978), Associate Professor of Earth and Environmental Sciences B.S. Duke, M.S., Ph.D. Dalhousie, Halifax

CARL J. CHARNETSKI (1976), Associate Professor of Psychology B.A. Wilkes, M.A., Ph.D. Temple

VENKAT CHEBOLU (1987), Assistant Professor of Chemistry B.S. University of Bombay, India, M.S. Indian Institute of Technology, Bombay, India, Ph.D. SUNY at Stony Brook

CYNTHIA J. CHISARICK (1981), Assistant Professor of Accounting B.S. Wilkes, C.P.A. State of Pennsylvania, M.B.A. Scranton

VASUNDHRA CHOUDHRY (1984), Assistant Professor of Engineering B.S. Delhi, M.S., Ph.D. Indian Institute of Technology Kanpur

ROSE ANN CORDORA (1983), Assistant Professor of Business Administration B.S., M.B.A. Wilkes

HAROLD E. COX (1963), Professor of History B.A. William and Mary, M.A., Ph.D. Virginia

FRED J. CROOP (1981), Assistant Professor of Accounting B.S., M.B.A. Wilkes, C.M.A. Inst. of Management Accounting

MARGARET S. CROWLEY (1984), Assistant Professor of Nursing B.S. Georgetown, M.S. Boston

FRANCK G. DARTE, II, (1968), Professor of Education B.A. Yale, M.S., Ed.D. Pennsylvania

LORNA C. DARTE (1969), Associate Professor of Library Science B.A. George Washington, M.S. Drexel Institute of Technology

B.A. Harvard, B.D., M.Div. Lutheran Seminary, M.A. Pennsylvania

JOEL BERLATSKY (1970), Professor of History B.A. Carleton, M.A. Brown, Ph.D. Northwestern JAMES G. DeCOSMO (1962), Associate Professor of Mathematics/Computer Science B.S. West Chester, M.S. Adelphi

ROBERT DeYOUNG (1960), Associate Professor of Economics B.S. Rhode Island, M.A. Columbia

SUZANNE M. DRUFFNER (1982), Associate Professor of Nursing B.S. Georgetown, M.S. Pennsylvania

BERENICE D'VORZON (1968), Associate Professor of Art B.F.A. Cranbrook Academy of Art, M.A. Columbia

BOYD L. EARL (1963), Associate Professor of Mathematics/Computer Science B.S. Wilkes, M.S. Bucknell

JANE M. ELMES-CRAHALL (1985), Assistant Professor of Speech, Communications, and Theater Arts

B.A. Bloomsburg, M.A. Ohio

THEODORE J. ENGEL (1966), Associate Professor of Business Administration B.B.A., M.A. Miami

MAHMOUD H. FAHMY (1968), Professor of Education B.A. Alexandria, Egypt, M.A. Columbia, Ph.D. Syracuse

M. UMAR FAROOQ (1983), Assistant Professor of Engineering
 B.S. Forman, Pakistan, M.S. Panjab, Pakistan, M.S. London, England,
 Ph.D. Birkbeck, London

WELTON FARRAR (1948), Professor of Economics B.S., M.S. Pennsylvania

OWEN D. FAUT (1967), Professor of Chemistry B.S. Muhlenberg, Ph.D. M.I.T.

BENJAMIN F. FIESTER, JR., (1956), Professor of English B.A. Wilkes, M.A. Bucknell, Ph.D. Pennsylvania State

RICHARD A. FULLER (1969), Associate Professor of Art B.S. New York, M.A. Columbia

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B.S.N. Bloomsburg, M.S.N. Pennsylvania State

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- GAY F. MEYERS (1970), Assistant Professor of Physical Education and Hygiene/Education B.S. Lock Haven, M.S. Wilkes
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- SOLEYMAN MOHSENI (1985), Assistant Professor of Engineering B.E. Iran, M.E., Ph.D. Rensselaer
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- MICHAEL C. O'NEILL (1980), Associate Professor of English and Theater Arts B.A. Fordham, M.A., Ph.D. Purdue
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# NOTES

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Sumber: May 22, 1983



## Location of Frequently-Used Student Services

As this Bulletin goes to press, several offices are preparing to relocate. While this listing was accurate at press-time, students are advised that the listing may already be somewhat inaccurate.

Academic Support CenterG	LibraryF
Act 101 OfficeG	Part-time Studies OfficeB
Admissions OfficeB	Public Relations OfficeM
Air Force ROTCC	RecorderK
Athletic DepartmentL	RegistrarK
Alumni OfficeA	Residence Life OfficeI
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Career Center	Student Union BuildingD
Continuing Education Office H	Study Abroad CoordinatorB
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Finance OfficeK	TheaterE
Financial Aid OfficeK	Upward Bound OfficeK
Graduate School OfficeH	Weekend College OfficeB
Health ServicesD	Writing LaboratoryG

## **Building Key**

L

M

Symbol	Building and Location
А	Annette Evans Faculty and Alumni House, 146 South River Street
В	Chase Hall, 184 South River Street
С	Church Hall, 187 South Franklin Street
D	Conyngham Student Center, 130 South River Street
Е	Dorothy Dickson Darte Center for the Performing Arts, Corner of River and South Streets
F	Eugene Shedden Farley Library, Corner of Franklin and South Streets
G	Kirby Hall, Corner of River and South Streets
Н	Max Roth Center, 215 South Franklin Street
Ι	Pickering Hall, Wright Street
J	Ross Hall, 251 South River Street
К	Sturdevant Hall, 129 South Franklin Street

Weckesser Annex, Rear 170 South Franklin Street

Weckesser Hall, 170 South Franklin Street

WILKES COLLEGE 1987-88 ACADEMIC CALENDAR

Sum	mer 1987 – First Day Session	
Classes Commence Classes End	Monday, June 15, 1987 Friday, July 17, 1987 (Including Final Examinations)	8:00 a.m. 12:00 noon
	Second Day Session	
Classes Commence Classes End	Monday, July 20, 1987 Friday, August 21, 1987 (Including Final Examinations)	8:00 a.m. 12:00 noon
E	ight-week Evening Session	
Classes Commence Classes End	Monday, June 15, 1987 Friday, August 7, 1987 (Including Final Examinations)	6:00 p.m. 10:00 p.m.
	Fall Semester – 1987	
Classes Commence	Wednesday, September 2, 1987 September 7, 1987)	8:00 a.m.
Fall Break	Friday, October 16, 1987	5:00 p.m.
Classes Resume	Wednesday, October 21, 1987	8:00 a.m.
Thanksgiving Break	Tuesday, November 24, 1987	10:00 p.m.
Classes Resume	Monday, November 30, 1987	8:00 a.m.
Classes End	Tuesday, December 15, 1987	10:00 p.m.
Reading Day	Wednesday, December 16, 1987	
Final Examinations Begin	Thursday, December 17, 1987	8:30 a.m.
Final Examinations End	Wednesday, December 23, 1987	10:00 p.m.
	Spring Semester – 1988	
Classes Commence	Wednesday, January 20, 1988	8:00 a.m.
Winter Break	Friday, February 19, 1988	5:00 p.m.
Classes Resume	Wednesday, February 24, 1988 (Wednesday, February 24, 1988 fold Monday Class Schedule)	8:00 a.m. lows
Factor Break	Friday, March 25, 1988	5:00 p.m.
Classes Resume	Tuesday, April 5, 1988	8:00 a.m.
Classes End	Friday, May 6, 1988	10:00 p.m.
Classes End	(Thursday, May 5, 1988 follows Mo Class Schedule and Friday, May 6 follows Tuesday Class Schedule)	onday , 1988
Final Examinations Begin	Monday, May 9, 1988	8:30 a.m.
Final Examinations End	Saturday, May 14, 1988	4:30 p.m.

## Commencement

Sunday, May 22, 1988

11:00 a.m.



# **1987-88** Wilkes College

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# Graduate Bulletin



WILKES COLLEGE Wilkes-Barre, PA 18766 (717) 824-9890

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## The President's Message

Graduate education at Wilkes College is designed to meet the encational needs both for students continuing directly on from their integraduate work and for professionals who want to enhance their redentials. You will find that the close faculty-student contact for which likes is known also characterizes graduate instruction. Part of our resion as a comprehensive institution of higher education is to help abls pursue their educational goals while strengthening the schistication of the labor force in Northeast Pennsylvania and the conomy of the region. More fundamental than even this pragmatic red, graduate education at Wilkes is meant to challenge and enrich udents intellectually, culturally, and socially, thus helping them to lead ler and more valuable lives.

> Christopher N. Breiseth President




## The Graduate Dean's Message

The distinctive feature of Wilkes graduate programs is that each course of study has been developed in consultation with practicing professionals in each field covered. Wilkes graduate faculty combines academicians and professionally established teacher-practitioners. Graduate classes are conveniently scheduled to accommodate the needs of both full-time and working students. Year-round courses are arranged to permit uninterrupted progress toward your educational objectives. A high quality individualized advising system has been established to insure the personalization of the educational experience. Graduate class size is designed to maximize the opportunity for student-instructor interaction. Wilkes College graduate study and research go beyond specialized fields and allow for multi-disciplinary programs which reflect the cross-fertilization of the realms of knowledge. The College cordially invites you to review the accompanying bulletin. Such review will enable you to discover the variety of offerings and the multiplicity of courses which are best suited for your present or future career goals.

> Mahmoud H. Fahmy Dean of Graduate Studies and Continuing Education

## Graduate Studies 1987-1988

Wikes College is an equal opportunity and affirmative action instituion. No applicant shall be denied admission to Wilkes College because drace, color, sex, religion, national or ethnic origin, or handicap.

### **REGULATIONS SUBJECT TO CHANGE**

The College reserves the right to change the requirements and regulators contained in this bulletin and determine whether a student has met sequirements for admission or graduation, and to reject any applicant tradmission for any reason the College determines to be material to the applicant's qualifications to pursue graduate education.

## GENERAL INFORMATION

The Graduate Division of Wilkes College was established in 1959 when the Board of Trustees authorized graduate study in the Departments of Chemistry and Physics. The first Master of Science Degrees were contered in 1965.

The graduate programs are designed to provide the opportunity for empletion of a Master's Degree in one or two years of full-time study. Cycling of graduate courses allows a full-time student to plan for continuus progress in his program.

The programs also allow businessmen, engineers, scientists, teachers, and others employed in the region to continue their studies without iterupting their employment. To permit a combination of work and sudy, many classes are scheduled to meet during late afternoon and arly evening hours.

#### ACCREDITATION

Wilkes Graduate Programs are approved and accredited by the Deatment of Education of the Commonwealth of Pennsylvania and the lidde States Association of Colleges and Secondary Schools.

In addition to the total program accreditation, certain special areas are ecognized by professional societies. The Chemistry curriculum is approved by the American Chemical Society.

Wikes College is a member of the Council of Graduate Schools in the Inted States, Pennsylvania Association of Graduate Schools. The Colregis an Associate Member of the Association of University Programs in Health Administration (AUPHA).

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## **GRADUATE DEGREE PROGRAMS**

Graduate degree programs are currently offered as follows:

<b>DEGREE</b> Master of Business Administra	tion	<b>Concentration</b> Marketing, Managerial Science, Labor, Accounting,	Earth and Environmental Scient Engineering Physics
Master of Science		Finance, Health Care Electrical Engineering, Mathematics, Physics	The College of Arts and Sciences departments: Aerospace Studies
Master of Health Service Admi	nistration	Long-term Care Administration, Health Care Marketing, Health Care Finance	Art Biology Chemistry Education
Master of Science in Educatior	1	Biology, Chemistry, Education, Educational Computing, Elementary Education, English, Field Education, History, Mathematics, Physics	History and Political Science Language and Literature Mathematics and Computer Science
Wilkes College Graduate St	udies Adı	ministration	Division of Graduate Studies
Dr. Christopher N. Breiseth Dr. Robert J. Heaman Dr. Mahmoud H. Fahmy	Preside Acting N Acad Dean of	nt Vice President for emic Affairs f Graduate Studies and	Dr. Mahmoud H. Fahmy, <i>Dean</i> Graduate Studies Secretary, 824-465 Continuing Education Secretary, 824
Continuing Education The academic departments at Wilkes College are administered under three divisions		tillfree from Scranton, Pennsylvania from elsewhere in Pennsylvania (800 from Middle-Atlantic and New Engla	
Professor Theodore J. Engel	Dean of	the School of Business and	Finance Office
Dr. Umid R. Nejib	Economics Dean of the School of Engineering and Physical Sciences		Fnancial Aid Office
Dr. James P. Rodechko	Dean of the College of Arts and Sciences		international Students Advisor
Departmental course descriptio The School of Business and I departments:	ns are gro Economics	uped accordingly. s includes the following	Part-time Undergraduate Offices
Accounting			Registrar's Office

The School of Engineering and Physical Sciences includes the departments of: onmental Sciences

s and Sciences includes the following

Music Nursing Philosophy Physical Education and Hygiene Psychology Sociology and Anthropology Speech, Communications and Theater Arts

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Second Floor, Max Roth Center 215 South Franklin Street Wilkes-Barre, PA 18766

nmy, Dean cretary, 824-4651, extension 226 n Secretary, 824-4651, extension 225

on, Pennsylvania 342-5617 ennsylvania (800) 572-4444 and New England Regions (800) 537-4444

> First Floor, Sturdevant Hall 129 South Franklin Street

Second Floor, Sturdevant Hall 129 South Franklin Street

Second Floor, Chase Hall 184 Sourth River Street

Second Floor, Chase Hall 184 South River Street

First Floor, Sturdevant Hall 129 South Franklin Street

Second Floor, Sturdevant Hall 129 South Franklin Street

**Business Administration** 

Economics



Recorder's Office

## FALL SEMESTER — 1987

Registration Graduate registration begins for the Fall Semester Monday, August 3 8:30 a.m. to 4:30 p.m.		R
Extended registration	in the second	
Wednesday, August 26 Thursday, August 27	8:30 a.m. to 8:00 p.m. 8:30 a.m. to 8:00 p.m.	
Classes begin Wednesday, September 2	8:00 a.m.	C
Fall Recess Friday, October 16 to Wednesday, October 21	5:00 p.m. 8:00 a.m.	L
Thanksgiving Recess Tuesday, November 24 to Monday, November 30	10:00 p.m. 8:00 a.m.	V
Classes end Tuesday, December 15	10:00 p.m.	S
Examinations Thursday, December 17, thru Wednesday, D	December 23	C

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## SPRING SEMESTER — 1988

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Registration Graduate registration begin Monday, December 7, 1987 Extended registration	s for the Spring Semester 8:30 a.m. to 4:30 p.m.
Monday, January 11 Tuesday, January 12	8:30 a.m. to 8:00 p.m. 8:30 a.m. to 8:00 p.m.
Classes begin Wednesday, January 20 (Wednesday, January 20, 1988 follows Monday Clas	8:00 a.m. ss Schedule)
Last day to file application for assistantships Friday, February 12	
Winter Break Wednesday, February 17 to Monday, February 22	10:00 p.m. 8:00 a.m.
Spring and Easter Break Friday, March 25 to Tuesday, April 5	5:00 p.m. 8:00 a.m.
Classes end Friday, May 6	10:00 p.m.
Examinations Monday, May 9 thru Saturday, May 14	8:30 a.m. 4:30 p.m.
Commencement Sunday, May 22, 1988	11:00 a.m.

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#### SUMMER 1988

First Day Session Registration Wednesday, June 8 Thursday, June 9	8:30 a.m. to 8:00 p.m. 8:30 a.m. to 8:00 p.m.
Classes begin Monday, June 13	8:00 a.m.
Classes end Friday, July 15 (Including Final Examinations)	12:00 noon
Eight-Week Evening Session	
Wednesday, June 8 Thursday, June 9	8:30 a.m. to 8:00 p.m. 8:30 a.m. to 8:00 p.m.
Classes begin Monday, June 13	6:00 p.m.
Classes end Friday, August 5 (Including Final Examinations)	10:00 p.m.
Second Day Session	
Wednesday, July 13 Thursday, July 14	8:30 a.m. to 6:00 p.m. 8:30 a.m. to 6:00 p.m.
Classes begin Monday, July 18	8:00 a.m.
Classes end Friday, August 19 (Including Final Examinations)	12:00 noon

## For further information, write or call:

Dr. Mahmoud H. Fahmy, *Dean* Division of Graduate Studies and Continuing Education Wilkes College Wilkes-Barre, PA 18766 Phone: (717) 824-4651, extension 226 Toll-free from Scranton, PA 342-5617 From elsewhere in Pennsylvania (800) 572-4444 From Middle-Atlantic and New England Regions (800) 537-4444

## APPLICATION

Applicants interested in graduate programs offered at Wilkes College should apply to the Division of Graduate Studies and Continuing Education. They should contact the office to obtain the forms and information needed to proceed with their application. They must fill out the "Application for Graduate Admission" form and arrange for the submission of official transcripts of all previous college work. All departments also require letters of recommendation and some may require Graduate Record Examination scores or the scores of other advanced tests used in their fields.

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Students, other than international students, who are unable to complete the application process prior to the beginning of the semester in which entrance is desired will be allowed Special admission to the program pending processing of their applications. This policy does not imply acceptance of the special student into the degree program. Students failing to complete the application process by the beginning of the second semester after their initial application may be denied the right to register for courses.

### QUALIFICATIONS

For admission to the Division of Graduate Studies an applicant must have received, from an accredited institution, a baccalaureate degree earned under residence and credit conditions substantially equivalent to those required by Wilkes College. Ordinarily, an entering student must have completed in a satisfactory manner a minimum of course work in designated areas, the specific courses and amount of work depending upon the field of advanced study.

Admission is granted to the student by the Dean of the Division of Graduate Studies according to the established standards set by the Schools or College in which the student plans to study.

Although the Division of Graduate Studies has no fixed minimum grade point requirement for admission, it is expected that candidates for admission shall have good or above-average performance during their undergraduate years and shall exhibit evidence of intellectual and temperamental fitness for graduate study.

Specific departmental requirements established for each area of study are to be found herein. Each applicant should consult these requirements prior to filing an application. A student whose background is judged to be deficient in any specific area of his field of study or whose undergraduate grades are below standard may be asked to remedy the deficiency by taking one or more courses at the undergraduate level, without graduate credit.

The objective of the Graduate Division is to admit a qualified graduate student up to the limit of the College's resources to provide outstanding graduate programs.



## **CLASSIFICATION OF STUDENTS**

A graduate student may be admitted either as a degree student or special non-degree, depending upon the student's objectives. After admission to one of these categories, any change to the other must be arranged through the Dean of the Division of Graduate Studies and Continuing Education.

**Regular** admission is granted to students who have demonstrated an acceptable level of academic work in their undergraduate program and are prepared for work at the graduate level in their field of specialization.

**Provisional** admission is a temporary classification in which an applicant may remain until completion of 12 graduate credits and/or undergraduate prerequisites, if any. The Dean of Graduate Studies and the appropriate School or College will review provisional admissions annually in order to revaluate their status in the graduate program. A student accepted as a provisional student because of marginal undergraduate grades will be permitted to take a maximum of 12 credits as a provisional student.

Students will be assigned academic advisors immediately upon their acceptance into a graduate program.

Undergraduate students at Wilkes College may be permitted to enroll in certain graduate courses with the approval of the Deans of the Schools or College and the Dean of Graduate Studies. Credit for such courses will ordinarily be at the undergraduate level. Under certain conditions an undergraduate student may be permitted to register for graduate credit. In no case will a student be given both undergraduate and graduate credit for any course.

## INTERNATIONAL STUDENTS

International students should plan to apply at least three months prior to the beginning of the semester or summer sessions in which they intend to begin graduate studies. They must submit two certified English translations of all academic records.

All applicants whose native language is not English must take the TOEFL (Test of English as a Foreign Language) and submit the results of this test with the application for admission. A student must present a minimum TOEFL score of 550 to be considered for admission to the Graduate Division.

It is required that each international student should submit an affidavit of support indicating that the applicant is able to cover one full year of tuition plus living expenses in the United States. The Immigration and Naturalization Service of the United States Department of Justice requires a certificate of eligibility (Form 1-20A) to be initiated by the college and completed by the student prior to his application for student visa to study in this country. Any extension of stay or employment while the United States must have the prior approval of the regional office of the Immigration and Naturalization Service.

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International students may be required to take certain courses for undergraduate credit not applicable to the Master's Degree. In some cases these courses will be specified in the admissions letter but the Dean of Graduate Studies may make additional requirements if a student is found to be deficient in the English language or in background knowledge in his field.

All international students should register their names with the International Student Advisor as soon as they arrive. The International Student Advisor, second floor Chase Hall, serves as advisor on non-academic matters to all international students. Services provided include counseling on housing, visa problems and other difficulties in adjusting to life in the United States.

International Students should officially notify the Dean of Graduate Studies and the International Student Advisor of any change of address or departing the United States.



## **General Academic Information**

### **DEGREE REQUIREMENTS**

Students may be awarded the master's degree upon satisfaction of all general college requirements for graduation and the following specific requirements:

- 1. Admission to graduate study as a regular student;
- 2. Satisfactory completion of all requirements for the degree to be completed within six calendar years preceding the date of the granting of the degree; (If extension of six-year limit is needed, a request should be submitted in a written form to the Dean of Graduate Studies.) The request of extension forms are available at the Graduate Office.
- 3. Maintenance of a minimum average of 3.0 for all graduate work;
- 4. Completion of specific School or College requirements;
- 5. If a thesis is required, the candidate should:
  - a. Be accepted by a thesis Advisor and an Advisory Committee, before completion of nine hours of graduate study;
  - b. Submit an acceptable thesis in the required format and quantity of copies not later than May 1 preceding the commencement at which the degree is to be conferred;
  - c. Complete arrangements for publication of the thesis, if so directed, satisfactory to the Advisory Committee.

Specific requirements for graduate degrees will be found within each School and College.

## **TRANSFER CREDITS**

A maximum of 6 credits of high quality graduate work done at another accredited and recognized institution may be applied toward the requirements for the Master's degree.

Approval to apply any transferred credits toward a degree program must be granted by the student's advisor, the Chairman of the Department and the Dean of the Division of Graduate Studies and Continuing Education. Transferred academic work must have been completed within six years prior to the date of the admission to the Graduate program at Wilkes College, must be at least B quality, and must appear on a graduate transcript. Pass-Fail grades are not transferable to an advanced degree program unless the "Pass" can be substantiated by the former institution as having at least "B" quality. **Grades earned in all transferable courses are not included in the computation of the cumulative grade point average.**  All requests for transfer of credits should be submitted to the Dean of Graduate Studies. Forms for transfer of credit may be obtained at the office of Graduate Studies, Max Roth Center, second floor, 215 South Franklin Street.

### **GRADE REGULATIONS**

Numerical grades are given for graduate work:

- 4 = A Academic achievement of outstanding quality
- 3 = B Academic achievement of acceptable quality in meeting requirements for graduation.
- 2 = C Academic achievement of quality below the average required for graduation
- 0 = F Academic achievement below the minimum required for course credit

A grade of "X" indicates assigned work yet to be completed in a given course. Except in thesis work, grades of "X" will be given only in exceptional circumstances. Grades of "X" must be removed through satisfactory completion of all course work no later than four weeks after the end of the final examination period. Failure to complete required work within this time period will result in the conversion of the grade to 0. Further extension of time allowed for the completion of work should be recommended by the Instructor and be granted only by the Dean of Graduate Studies.

To achieve more flexibility and to promote advancement of knowledge, the Division of Graduate Studies has provided the opportunity to acquire a series of one-credit courses. Such courses must meet the following requirements:

- 1. Students should be evaluated by the instructor and receive grades using the same graduate course grading system presently in use at the College.
- 2. Such courses should involve 15 hours of class time or its equivalent.
- 3. Such courses must be approved by the departments offering the courses and by the Dean of Graduate Studies.
- 4. Instructors for such courses must be approved by the department's offering the courses and by the Dean of Graduate Studies.
- 5. Such courses may not be used in place of any core requirements in a graduate degree program, but may be used as elective in such programs.
- 6. The total number of credits earned in such courses which may be applied toward a graduate degree program may not exceed six credits.



## RETENTION

A student admitted to graduate study must maintain a grade average of 3.00 or better in all graduate work for retention in the Graduate Program. A student whose grade-point average drops below a 3.00 will be placed on probation, suspended from graduate study, or dismissed from the Graduate Program. Decisions in such matters will be made by the Dean of Graduate Studies in consultation with the deans of the Schools and College, the Chairperson of the appropriate department in accordance with the regulations of the School or College and of the Division of Graduate Studies. A student who is suspended from graduate study or dismissed from the Graduate Program may request a review of the case by the Faculty Committee on Graduate Studies. The request should be submitted in **written form** to the Dean of Graduate Studies.

## REGULATIONS FOR WITHDRAWAL

A grade of "W" indicates an authorized withdrawal from a course. A graduate student wishing to withdraw from a course must secure a withdrawal form from the Graduate Office and have it approved by the instructor, the faculty advisor and the Dean of Graduate Studies. Failure to secure authorized withdrawal for a course not completed will result in a grade of 0.

## **REGULATIONS ON THESIS RESEARCH**

Each graduate student shall select a major advisor under whose direction he wishes to pursue his thesis research, if a thesis is required. Following acceptance of the candidate, the advisor shall appoint two other members of the Graduate Faculty to serve with him as the student's Advisory Committee.

Part-time students employed in laboratories on a full-time basis may be permitted to conduct their thesis research in these laboratories if a mutually satisfactory agreement can be reached by the student, the laboratory staff, and the College. In such cases, a qualified member of the staff of the employer shall be named by the Dean of Graduate Studies to serve as a member of the student's Advisory Committee. He shall also be appointed an adjunct professor of the College and shall supervise the day-to-day progress of the student's research.

The original and two copies of the thesis must be submitted to the Dean of Graduate Studies after the thesis has been approved by the Advisory Committee. One copy will be filed in the Library, one in the Graduate Office and one in the appropriate department. If the student desires a personal copy bound, an additional copy should be furnished. For thesis binding fees, see under fees and expenses.

#### **EXAMINATIONS**

Students who desire to remove undergraduate deficiencies may submit to challenge examinations. This cannot be used to earn credits toward the graduate degree. Arrangements are made by the student directly with the major department head or program chairperson. A fee for such examination is \$20 per credit.

### TRANSCRIPTS

Transcripts are provided by the Office of the Recorder. They are issued only upon written request by the student, and should be requested at least three weeks prior to the date needed. A student requesting a transcript in person must present valid identification.

Transcripts given directly or mailed to students do not carry the college seal and are not official. The seal is attached only when the transcript is mailed directly from the College to another college or authorized agency. A transcript of work completed at any college or high school must be requested by the student to be sent directly from that institution to Wilkes College Graduate Office.

There is no charge for the first transcript requested. The student will pay two dollars for each additional transcript.

#### **DISCIPLINARY PROCEDURES**

Graduate students are obligated to observe the regulations governing all students of the College relative to:

- 1. Academic honesty and integrity
- 2. Respect for the rights of others relative to their safety, welfare and educational commitments
- 3. The safety and security of the entire College community.

Any disciplinary cases arising from a lack of observance of these regulations will be adjudicated by the Dean of the Graduate School and the Dean of Student Affairs. These two Deans shall have the responsibility of hearing such cases with the Chairman of Graduate Studies Committee and a student.

Any appeals from the decisions of this Committee may be made in writlen form to the Vice President for Academic Affairs.



## FEES AND EXPENSES

All Payments for tuition, room and board, fees, etc., are due at the time registration forms are processed.

Payment of all charges for tuition, fees, room and board is to be made at the Finance Office, Sturdevant Hall. Several plans have been developed to assist students who do not have the cash in hand, and it is suggested these plans be considered when special assistance is needed. Students may consult with the Director of Financial Aid for information regarding scholarship and loan programs.

Subject to the regulations concerning refunds, the total tuition is considered fully earned by the college upon completion of registration by the student.

Application Fee: \$25.

Tuition Cost per Semester: \$195 per credit hour.

College Fee: \$3 per credit hour.

Graduation Fee: \$65 (Charged to all graduating students in their last semester.)

Thesis Binding Fee: \$7 per copy.

Transcript Fee: The first transcript is free of charge; the fee for the second and subsequent transcripts is \$2 per copy.

Individual departments have the right to charge laboratory and breakage fees as appropriate.

The Finance Office is prohibited from signing graduation clearance forms until the outstanding balance is paid in full. Graduates who have requested the deferred payment option must pay the final semester balances personally before clearance forms are signed or have a written guarantee from their employer that the amount will be paid to Wilkes College regardless of course completion or final grade. Those prospective graduates not complying with the above policy will not be cleared until actual cash payment is received from their employer.

Third-Party Billing and Deferred Payment forms may be picked up at the Finance Office. **These forms must be submitted each semester**.

## ASSISTANTSHIPS AND COUNSELORSHIPS

The College awards a limited number of Graduate Assistantships. Applications for these assistantships **must be filed with the Dean of Graduate Studies no later than February 12, 1988 for the 1988-89 academic year.** 

A number of counselorships in undergraduate residence halls are available each year to graduate students. Applications for these positions must be filed with the Director of Housing no later than February 1 to be considered for the academic year beginning in September.

#### REFUNDS

Students who have paid their tuition in full and who withdraw from courses or from the College during the time limits indicated below will receive tuition refunds, upon written request to the Comptroller's Office, according to the following formula.

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	Time of withdrawal	Tuition refund
Academic Year:	First two weeks	80%
	Third and fourth week	60%
	Fifth week	40%
	After fifth week	No refund
5-week Summer Sessions:	First week	50%
8-week Summer Session:	First two weeks	50%

#### GRADUATION

All graduate students are expected to participate in commencement exercises at the close of the academic year in which they complete their degree requirements. It is the responsibility of the graduate student to inform the Graduate Office in written form of his/her impending graduation no later than February 15 of the year in which he/she expects to receive the degree.



## **College of Arts and Sciences**

James P. Rodechko, (Ph.D.) Dean

Lester J. Turoczi, (Ph.D.) Chairman

Three credits

Three credits

**Biology** 

## **Master of Science in Education**

Candidates for the degree of Master of Science in Education with a major in biology must take eighteen hours of biology in courses numbered 301 or above. Chemistry 361 and 362 may be taken for credit toward the biology component with the prior approval of the Chairman of the Biology Department.

Requirements for the education component of the Master of Science in Education, with a major in biology, are listed under Education on page 21.

## COURSES OF INSTRUCTION

## **BIOLOGY 303. BACTERIOLOGY**

Three credits Biology 303 covers generally the morphology and identification of bacteria. Laboratory work includes microscopy, techniques of making media, methods of sterilization, and the culturing of bacteria. Fee: \$35.

Prerequisite: Biology 121-122, or permission of instructor.

## BIOLOGY 304. LIFE OF THE VERTEBRATES

This course presents a view of chordate animals with particular emphasis on the natural history, evolution, and classification of these forms. Lecture, two hours a week; laboratory, three hours a week. Fee: \$35.

Prerequisite: Biology 121-122, or permission of instructor.

## BIOLOGY 305. INVERTEBRATE BIOLOGY

A study of the major invertebrate phyla with respect to their taxonomy, evolution, morphology, physiology and ecology. Fee: \$35.

Prerequisite: Biology 121-122, or permission of instructor.

## **BIOLOGY 307. ANALYTICAL CYTOLOGY**

Experimental analysis of cell structure, organelles, chemistry and activities by means of Three credits microscopic techniques and instrumentation. Fee: \$35.

Prerequisite: Biology 121-122, or permission of instructor.

## **BIOLOGY 308. GENETICS**

Three credits This course will present a detailed treatment beyond the introductory level with particular emphasis on populational aspects of heredity. Topics will include plant and human genetics. Lecture, two hours a week; laboratory, three hours a week. Fee: \$35. Prerequisite: Biology 121-122, or permission of instructor.

## **BIOLOGY 309. EVOLUTION**

Three credits Evolution is a study of how new species of organisms are derived from previously existing species. Emphasis is placed upon the processes of organic evolution and the development of the evolutionary ideas. Fee: \$15.

Prerequisite: Biology 121-122, or permission of instructor

### BIOLOGY 310. ANIMAL BEHAVIOR

#### A course emphasizing behavior as the response of an organism to physical and social environmental change, and covering the processes that determine when changes in behavior occur and what form they will take. Laboratories, using living local fauna, will demonstrate principles discussed in lecture. Fee: \$35.

Prerequisite: Biology 121-122, or permission of instructor.

## BIOLOGY 312. COMPARATIVE PHYSIOLOGY

Advanced physiology encompasses the study of organ functions and organ system functions in different animal groups. Emphasis will be on the systemic physiology of vertebrate animals. Lecture, two hours a week; laboratory, three hours a week. Fee: \$35. Prerequisite: Biology 121-122, or permission of instructor.

Parasitology is the study of organisms that live on or within other organisms and the rela-

#### **BIOLOGY 313. PARASITOLOGY**

## tionship of these organisms to their hosts. This course deals with the common parasites

that infect man and other animals. Lecture, two hours a week; laboratory, three hours a week. Fee: \$35

Prerequisite: Biology 121-122, or permission of instructor.

### **BIOLOGY 315. MOLECULAR BIOLOGY**

#### Molecular Biology is the study of the energetics, metabolism, and biochemical aspects of living systems. A general biochemical presentation will be provided with reference to proleins, carbohydrates, and lipids with extensive coverage of molecular genetics. Lecture, three hours a week

Prerequisite: Biology 121-122, Chemistry 231-232, or permission of instructor.

#### **BIOLOGY 317, ECOLOGY**

**Three credits** 

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**Three credits** 

Three credits

**Three credits** 

**Three credits** 

Ecology examines contemporary ecological thinking as it pertains to the inerrelationship of organisms and their environments. Interactions at the population and community levelsare emphasized. Lecture, two hours a week; laboratory, three hours a week. Fee: \$35. Prerequisite: Biology 121-122, or permission of instructor.

#### BIOLOGY 318. DEVELOPMENTAL BIOLOGY

A course dealing with principles of organismic development, gametogenesis, fertilization, cleavage, embryogenesis, differentiation, morphogenesis, regeneration. Laboralory work includes vertebrate embryology, microtechnique, and some experimentation. Lecture, two hours; laboratory, three hours a week. Laboratory fee: \$35.

Prerequisite: Biology 121-122, 223-224, or permission of instructor.

### **BIOLOGY 319. PLANT DIVERSITY**

#### A comprehensive survey of bryophytes, vascular plants and plantlike organisms (fungi and algae) emphasizing their structure, reproductive biology, natural history, evolution, and importance to humans. Lecture, two hours per week; laboratory, three hours per week. Laboratory fee: \$35.

Prerequisite: Biology 121-122, 223-224, or permission of instructor.

### **BIOLOGY 320. PLANT FORM AND FUNCTION**

#### **Three credits**

Three credits

An introduction to the morphology, anatomy, cytology and physiology of plants, with emphasis on the vascular plants. Structural and functional aspects of plants will be interpreted in relation to each other and within ecological and evolutionary contexts. Lecture, two hours per week; laboratory, three hours per week. Laboratory fee: \$35.

Prerequisite: Biology 121-122, 223-224, or permission of instructor.



#### **BIOLOGY 340. LIMNOLOGY**

Three credits A study of the chemical, physical, and biological aspects of fresh water systems. Laboratory investigations will consist of in-depth analyses of local lakes and streams. Lecture, two hours a week; laboratory, three hours a week. Fee: \$35. Prerequisite: Biology 121-122, or permission of instructor.

## BIOLOGY 341. IMMUNOLOGY AND IMMUNOCHEMISTRY

This course is concerned with the biologic mechanisms and chemistry of reactants and mediators associated with natural and acquired states of immunity, tissue and blood serum responses to infection and immunization, and related patho-physiologic alterations of hypersensitivity, phenomena in vertebrate animals and man. A background in microbiology, physiology, and biochemistry is advisible. Lecture, two hours a week; laboratory, three hours a week. Fee: \$35.

Prerequisite: Biology 121-122, or permission of instructor.

## **BIOLOGY 385. FIELD BOTANY**

This is a specialized summertime field course which emphasizes a taxonomic, phylogenetic, and ecological survey of higher plants indigenous to Northeastern Pennsylvania. Due to the extensive field work, enrollment is somewhat more restricted than in other courses; therefore, written permission from the instructor is the prime prerequisite of those upperclassmen wishing to register for the course

Prerequisite: Biology 121-122, 223-224, or permission of instructor.

## **BIOLOGY 394. BIOLOGICAL FIELD STUDY**

On-site study of biological problems or situations incorporating documentation and investigation techniques. May be repeated for credit when no duplication of experience results. One hour of lecture per week, plus field trip. Fee: Variable. Prerequisite: Biology 121-122, or permission of instructor.

#### **BIOLOGY 398. TOPICS**

Three credits A study of topics of special interest not extensively treated in regularly offered courses. Prerequisite: Biology 121-122, or permission of instructor.

## Chemistry

Howard A. Swain, Jr., (Ph.D.) Chairman

Three credits

**Three credits** 

Three credits

## Master of Science in Education

### **ADMISSION**

For admission to graduate study in chemistry education, the applicant should have a baccalaureate degree from an accredited institution, with a minimum of 35 semester credit hours in chemistry. In addition, a year of physics and a working knowledge of calculus and differential equations are required. Students deficient in any of these areas may, at the discretion of the chemistry faculty, be granted provisional admission.

## DEGREE REQUIREMENTS

General requirements for the Master of Science in Education with a major in chemistry are listed under Education on page 21. Specific chemistry requirements will be outlined by the student's advisor in the chemistry department.

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### **COURSES OF INSTRUCTION**

## CHEMISTRY 325. ADVANCED INORGANIC CHEMISTRY

**Three credits** Introduction to ligand and field theory; chemistry of the first transition series, 'organometallc, and pi-acceptor compounds; mechanisms of inorganic reactions. Prerequisite: Chemistry 222 and 252.

#### CHEMISTRY 335. ADVANCED ORGANIC CHEMISTRY

**Three credits** 

**Three credits** 

**Three credits** 

An intensive treatment of the concepts of physical organic chemistry with emphasis on the mechanisms of homogeneous organic reactions and the physiochemical methods for determining the structure of organic molecules. Prerequisite: Chemistry 232

#### CHEMISTRY 344. ADVANCED ANALYTICAL CHEMISTRY Four credits

The theory and application of modern techniques and instrumental procedures, such as spectrophotometric, electro-analytical, and chromatographic. Theory and practice of analysis of more complex materials. Class, two hours a week; laboratory, six hours a week. Fee \$45.

Prerequisite: Chemistry 252.

#### CHEMISTRY 356. ADVANCED PHYSICAL CHEMISTRY

A detailed examination of statistical thermodynamics, advanced kinetics, quantum theory, and spectroscopy

Prerequisite: Chemistry 252.

#### CHEMISTRY 361. BIOCHEMISTRY I

Astudy of the physical and chemical properties of biological molecules with emphasis on physical methods of biochemistry, proteins, enzyme kinetics, bioenergetics, nucleic acids, and carbohydrates Prerequisite: Chemistry 232.

#### CHEMISTRY 362. BIOCHEMISTRY II

Astudy of metabolism with emphasis on metabolic regulation. Prerequisite: Chemistry 232.

### CHEMISTRY 398. TOPICS

A study of topics of special interest not extensively treated in regularly offered courses. Prereguisite: Permission of the instructor.

## Education

Joseph T. Bellucci, (Ed.D.) Chairman

## **Master of Science in Education**

#### PURPOSE

Graduate study in education is offered primarily to enable teachers to enhance their preparation for classroom leadership. Study in various academic fields is required as well as in professional courses. Sufficient flexibility is provided, however, to permit others interested in education to arrange programs of study appropriate to their interests.

Programs are offered in General; Elementary; and Field Education; Educational Computing; Secondary Education; with a major in Biology, Chemistry, English, History, Mathematics, or Physics; and Special Education 21

#### **Three credits**

Wilkes College has been designated as a Regional Computer Resource Center. This center was established in 1984 as part of the Information Technology for the Commonwealth (ITEC) Act adopted and funded by the Pennsylvania General Assembly. The Center at Wilkes is one of 14 across the Commonwealth created to enhance the microcomputer literacy among classroom teachers in Pennsylvania.

The Regional Computer Resource Center provides the following services:

- 1. free graduate level computer literacy courses to K-12 teachers in Pennsylvania's public and nonpublic schools;
- 2. teacher training in microcomputer topics such as software evaluation via short workshops and seminars;
- 3. assistance to school districts in designing computer-oriented curricula;
- 4. dissemination of information about ITEC grants for the acquisition of hardware and courseware by school districts.

The Regional Computer Resource Center is administered by the Pennsylvania Higher Education Assistance Agency.

## SPECIAL FEATURES OF THE PROGRAM

The program is arranged so that students may pursue the degree on a full- or part-time basis. Late afternoon and evening classes are offered to enable full-time teachers within a reasonable distance from Wilkes-Barre to take courses toward fulfillment of degree requirements during the academic year. Credits may also be earned during the summer sessions.

### **ADMISSION**

For admission to graduate study in education, the applicant must have a baccalaureate degree from an accredited institution or the equivalent with an appropriate major.

Students deficient in any phase of requirements may, at the discretion of the academic department, the Education Department, or the Dean of Graduate Programs, be granted provisional admission. Deficiencies must be made up satisfactorily before full admission to graduate study will be granted.

Students who do not wish to earn a degree are invited to request "special non-degree" admission status.

## DEGREE REQUIREMENTS

All candidates for the Master of Science in Education degree must complete a program of thirty credits; at least twelve credits must be in education, six in Area I and three in Area II. A candidate for the Master of Science in Education degree who majors in Education must earn nine credits in one Area in education, beyond the twelve-credit basic requirement, and must (a) take Education 526 and complete a thesis for which three credits may be granted, or must (b) complete a total program of thirty-six credits.

A candidate for the Master of Science in Education degree who majors in elementary education must take three courses in the Education 532 series and Education 534.

A candidate for the Master of Science in Education degree who majors in one of the secondary school teaching subjects must complete eighteen credits in the appropriate academic department; three of the twelve credits in education must be in Area IV.

A candidate for a Master of Science in Education with a concentration in Educational Computing must complete thirty credits; six credits must bein Area I, and Education 522, 581, 582, 583, 585, 587, 588, and 589.

A candidate for the Master of Science in Education who is a practicing teacher may elect the degree with Field Education concentration. The requirements for this degree are: Two courses in Area I; one course in Area II, Ed 520 or 521; Ed 534 or 541; four three-credit PLS courses: Project T.E.A.C.H., P.R.I.D.E., Teaching Through Learning Channels, and Teaching Strategies; and six elective credits in education.

A candidate for the Master of Science in Education degree with concentration in Special Education must take Education 525, 560, 561, 562, 564, and Psychology 331.

Certification courses in Area 0 are not accepted for degree requirement credit. Transcripts will show credit for these courses for certification purposes only.

### PROGRAM OF STUDY

Each student develops a program of study which will satisfy requirements for the degree. The program must be approved by his advisor and by the Education Department. To facilitate securing this approval, students in secondary education are assigned a co-advisor in the Education Department.

## **COURSES OF INSTRUCTION**

## EDUCATION

## **AREA 0 — CERTIFICATION COURSES**

EDUCATION 400. GENERAL SECONDARY SCHOOL METHODS

#### Three credits

An introduction to principles, methods, and materials appropriate for secondary school instruction.



<b>EDUCATION</b> 4	01-402.
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#### ELEMENTARY CLASSROOM METHODS

Three credits each semester An introduction to principles, methods, and materials appropriate for elementary school instruction. Education 401 is a prerequisite to 402.

#### EDUCATION 403-404. INTERN TEACHING Three credits each semester

Beginning teachers are assigned to supervisors who work with them to facilitate their introduction to classroom teaching. Section B Secondary

Section A Elementary

## EDUCATION 405.

**Three credits** 

Three credits

Three credits

Three credits

Three credits

Three credits

Three credits

INTRODUCTION TO READING INSTRUCTION A foundation course in reading instruction.

## **EDUCATION 409. SHORT COURSES**

These courses treat a variety of topics, usually on a condensed schedule basis. They are designed to meet the immediate needs of teachers and may not be used to satisfy degree requirements. Credit is given at the rate of one-half semester hour for each eight hours of classwork.

## AREA I — FOUNDATIONS OF EDUCATION

### EDUCATION 510.

**PSYCHOLOGICAL FOUNDATIONS OF EDUCATION** 

A study of human development and learning, application of psychological principles in the practice of education.

#### **EDUCATION 511.**

PHILOSOPHICAL FOUNDATIONS OF EDUCATION

An examination of philosophical issues which bear upon American education. The problem of relating theory to practice is considered.

## EDUCATION 512. SOCIAL FOUNDATIONS OF EDUCATION

An introduction to the history, scope, materials and methods of the sociological analysis of education. Instruction includes the concepts of culture, socialization, stratification, social control and change as they relate to formal education.

## **EDUCATION 513.**

COMPARATIVE FOUNDATIONS OF EDUCATION

An analytic study of educational patterns in contemporary societies. Educational policies and institutions are studied in their cultural context. Educational patterns of developed and developing nations are described, analyzed and compared; examples from each pattern are examined.

#### **EDUCATION 514.**

## HISTORICAL FOUNDATIONS OF EDUCATION

A survey of the great landmarks of Western education from antiquity to the recent past. The development of primary, secondary, and higher education; objectives; curricula; methods; and systems of education are considered. Attention is given to some contemporary problems in their historical perspectives.

## EDUCATION 515.

## EDUCATION PLANNING IN DEVELOPING NATIONS

An analytical study of educational patterns in developing nations. Educational systems are described, analyzed and compared with particular attention to planning and system analysis.

## **AREA II — PROFESSIONAL SKILLS** IN EDUCATION

EDUCATION 520. TESTS AND MEASUREMENTS Three credits Study of characteristics, construction, and use of various standardized and non-standardized measuring instruments: statistics through basic correlation.

### EDUCATION 521, STATISTICS IN EDUCATION

Correlation and regression through statistical inference. Prerequisite: Education 520 or equivalent.

EDUCATION 522.

## Three credits

Three credits

**Three credits** 

EDUCATION STATISTICS AND COMPUTER SIMULATION This course utilizes the microcomputer for statistical inference. Students also have experiences in system modeling and techniques to simplify and represent relationships in complex problems.

## EDUCATION 525. EDUCATIONAL RESEARCH I

A study of procedures used to collect, analyze and present data; critical examination of representative educational research reports. This course may not be taken for credit subsequent to Education 526.

Prerequisite: Education 520 or equivalent.

### EDUCATION 526. EDUCATIONAL RESEARCH II

**Three credits** 

Advanced study of research methods; literature search leading to a thesis proposal Prerequisite: Education 521 or equivalent.

## **AREA III — ELEMENTARY EDUCATION**

## EDUCATION 531. CHILDREN'S LITERATURE

Three credits

A study of methods and materials appropriate for elementary school instruction in literature.

#### EDUCATION 532-533. PROBLEMS IN ELEMENTARY EDUCATION

**B** Science

C Language Arts

Advanced study of materials and methodology appropriate for elementary classroom in-

struction. Section A Mathematics

D Social Studies E Special Subjects

#### EDUCATION 534. ELEMENTARY SCHOOL CURRICULUM Three credits

A study of curricula offered in elementary schools, grade placement of content, articulation of subject matter areas, development of specialized programs. Prerequisite: Fifteen graduate credits.

#### **EDUCATION 535. NONGRADED INSTRUCTION** IN THE ELEMENTARY SCHOOL

**Three credits** 

A study of the rationale for nongrading, the nongraded curriculum, and instructional staffing design

Prerequisite: Permission of the instructor.



#### **EDUCATION 536. ELEMENTARY**

#### SCHOOL READING INSTRUCTION

Lectures and demonstrations cover the psychology of the reading process, appraisal of reading needs, directed reading activities, word recognition and comprehension abilities

## **EDUCATION 537. READING DISABILITIES**

Lectures and demonstrations cover the identification, diagnosis, and classification of individuals with reading problems at all ages and levels of instruction. Prerequisite: Education 536.

## **AREA IV — SECONDARY EDUCATION**

#### **EDUCATION 540. SPECIAL METHODS IN** SECONDARY SCHOOL INSTRUCTION

C Environmental Science

Section A Biology

**B** Chemistry

D English

E History

Three credits each semester F Mathematics

Three credits

Three credits

Three credits

**Three credits** 

Three credits

- G Physics H Reading Social Sciences
- **Educational Theater** K Science

#### **EDUCATION 541. SECONDARY SCHOOL CURRICULUM**

**Three credits** A study of secondary school curricula, traditional programs, recent developments, provisions for innovation and individualization

## EDUCATION 542. EXTRA-CURRICULAR ACTIVITIES

A study of the development of extra-curricular activities, organization and administration, the role of the sponsor, recent trends

## **AREA V — FIELD EDUCATION**

The following courses were developed by educators at Performance Learning Systems, Inc. The coursework is tightly structured, utilizing programmed learning with integrated audio-visual materials. Students conduct research in their own classrooms and report regularly on their success in employing strategies taught. Instructors for these courses receive special training prior to assignment.

#### EDUCATION 550. PROJECT T.E.A.C.H.

Teacher Effectiveness and Classroom Handling (T.E.A.C.H.) deals with clarity of communication, avoidance of confrontation, and techniques to reduce tension in the classroom

#### EDUCATION 551. P.R.I.D.E.

Professional Refinements in Developing Effectiveness (P.R.I.D.E.) treats questioning techniques, non-verbal communication, and the development of contracts to motivate students

## EDUCATION 552. TEACHING THROUGH LEARNING CHANNELS Three credits

This course utilizes recent brain research, examines individual differences in learning styles, and develops adaptive teaching procedures to accommodate varying cognitive processes.

#### **EDUCATION 553. TEACHING STRATEGIES**

#### Teaching Strategies is designed to explain ways inductive, deductive, analysis and synthesis processes can be taught in classroom lesson. This includes effort management and curriculum decision making.

## **AREA VI — SPECIAL EDUCATION**

#### EDUCATION 560. PSYCHOLOGY OF EXCEPTIONAL CHILDREN

**Three credits** 

Three credits

AAA

Advanced study of children whose characteristics deviate significantly from normal children

- Section A Mentally Retarded B — Socially and Emotionally Maladjusted
  - C Gifted and Talented

#### EDUCATION 561. INDIVIDUAL ASSESSMENT

**Three credits** Advanced study of instruments utilized in the measurement of personality and intelli-

Prerequisite: A course in testing.

#### EDUCATION 562.

gence

REMEDIATION OF LEARNING DISABILITIES I **Three credits** Astudy of the major areas of learning disability: gross motor development, sensory-motor development, perceptual-motor skills

#### EDUCATION 563.

**REMEDIATION OF LEARNING DISABILITIES II Three credits** A continuation of Education 562: language development, conceptual skills, social skills. Prerequisite: Education 562.

#### **EDUCATION 564.**

programs

CURRICULUM AND METHODS IN SPECIAL EDUCATION Advanced study of instructional materials and techniques employed in special education

## **AREA VII — SUPERVISION**

#### **EDUCATION 570. SUPERVISION OF INSTRUCTION Three credits**

#### A study of the responsibilities supervisors have and proven techniques by which these duties are carried out.

#### EDUCATION 571. PRACTICUM IN SUPERVISION

Affords students an opportunity to gain experience in supervisory activities in education under the guidance of experienced supervisors.

#### EDUCATION 573. CURRICULUM CONSTRUCTION **Three credits** Advanced study of curriculum development and evaluation

**EDUCATION 575. GROUP DYNAMICS Three credits** 

## Study of the nature and behavior of groups.

EDUCATION 576. INTRODUCTION TO EDUCATIONAL ADMINISTRATION

Basic study of the administrative function in educational institutions.

**Three credits** 

Six credits



#### **EDUCATION 578. SCHOOL LAW**

An examination of school law at the federal, state and local levels; review, discussion and analysis of court decisions which affect schools.

## **EDUCATION 579. NEGOTIATIONS IN EDUCATION**

A study of the processes and strategies used in collective negotiations in education, simulation of the bargaining confrontations, interaction analysis of the simulation.

## **AREA VIII — EDUCATIONAL COMPUTING COURSES**

#### EDUCATION 580. COMPUTER LITERACY

The essential elements of programming in the BASIC language for microcomputers and its use in instructional programming

#### EDUCATION 581. ADVANCED BASIC FOR INSTRUCTIONAL PROGRAMMING

This course includes random, sequential and direct-access files, sorting, searching, modeling, graphics and simulation. Emphasis is on the application in instructional environments.

Prerequisite: Prior computer experience.

## EDUCATION 582. INSTRUCTIONAL PROGRAMMING IN PASCAL Three credits

PASCAL for microcomputers. Emphasis will be on the use of this structured programming for classroom instruction and the preparation for teaching the AP course in computing.

## EDUCATION 583. MACHINE LANGUAGE

Basic principles of machine language programming. Computer organization and representation of numbers, strings, arrays, list structures at the machine level. Prerequisite: One course in a high-level language.

#### **EDUCATION 584. LOGO**

Introduction to computer programming using the LOGO language. Topics included are turtle graphics; writing procedures that use numbers, words and lists; LOGO syntax; using recursion to deal with words and lists, and using lists to represent complex data structures.

## EDUCATION 585. MICROCOMPUTER-ASSISTED INSTRUCTION Three credits

Design, development and testing of microcomputer-assisted instructional units as tutorial, simulation, and drill, using the PILOT language. Prerequisite: One course in a high-level language.

### EDUCATION 586. MICROCOMPUTERS IN EDUCATION

Three credits An analysis of microcomputer applications designed for use in various educational settings. Special emphasis is placed on software evaluation. Section A Mathematics

#### B Science E Special Topics C Language Arts

#### EDUCATION 587. MICROCOMPUTER DATA STRUCTURES

Three credits THe use of a high-level language to implement complex data structures. These include lists, trees, graphs, networks and storage allocation.

Prerequisite: One course in a high-level language.

#### EDUCATION 588. MICROCOMPUTER ORGANIZATION AND OPERATING SYSTEMS

The study of architecture and design of present day microcomputer systems. Common operating systems will be examined along with their support hardware and software. Prerequisite: Ed 587

#### EDUCATION 589. METHODS OF TEACHING COMPUTER SCIENCE

**Three credits** 

Three credits

Three credits

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Astudy of instructional methodology in computer science. Attention is given to characteristic problems faced by teachers.

## **AREA IX — ADVANCED GENERAL** COURSES

#### **EDUCATION 590. THESIS**

Three credits

Three credits

Three credits

Three credits

Three credits

Three credits

D Social Studies

**EDUCATION 594. WORKSHOP** 

## Three credits each semester

Provides an opportunity for experienced teachers to develop study programs designed to meet their special needs. Students may receive credit more than once if there is no duplication in subject matter covered.

#### EDUCATION 595-596. INDEPENDENT STUDY Three credits each semester

Affords an opportunity for independent study of selected topics under faculty supervision.

Prerequisite: Permission of department chairman.

#### **EDUCATION 597. SEMINAR**

An advanced course dealing with some significant issues selected by the instructor. The seminar technique provides a review of major problems based on the current level of knowledge in the area.

Prerequisite: Permission of the instructor.

## **EDUCATION 598, TOPICS**

English

#### Advanced study of topics of special interest not extensively treated in regular courses.

#### **EDUCATION 599. SHORT COURSES**

#### These courses treat a variety of topics, usually on a condensed schedule basis. Designed to investigate problems in the field, these courses provide an opportunity for practicing professionals to study current issues under qualified leadership. Departmental approval is required if credits are to be applied to meet degree requirements. A maximum of six credits may be used to meet degree requirements. Credit is given at the rate of one-half semester hour for each eight hours of classwork.

Walter Karpinich, (Ph.D.) Chairman

## **Master of Science in Education**

## SPECIAL DEGREE REQUIREMENTS

Candidates for the degree of Master of Science in Education with a major in English must complete eighteen hours of course work in English, twelve of which must be in courses numbered 400 or above.



Three credits

**Three credits** 



Information on requirements of the Education Department for the Ma ter of Science Degree will be found under Education on page 21.	AS- ENGLISH 370. Study of the majo
COURSES OF INSTRUCTION	ENGLISH 372.
ENGLISH 301. LITERARY CRITICISMThree credA study of literary theory and the techniques of analysis.	lits ENGLISH 374.
<b>ENGLISH 310. MEDIEVAL ENGLISH LITERATURE</b> Three cred A study of English literature to 1500, exclusive of Chaucer and the drama.	lits ENGLISH 381.
ENGLISH 312. CHAUCER Three cred Study of Chaucer's life and major works, including <i>The Canterbury Tales</i> and <i>Troilus a</i> <i>Crisevde</i> .	Its Prerequisite: E
Prerequisite: Eng 152 or 254.	A study of Ameri Prerequisite: E
Study of English non-dramatic literature from 1485 to 1603.	ENGLISH 383.
<b>ENGLISH 321. EARLY ENGLISH DRAMA</b> Three cred Study of the drama from the tenth century to 1642; reading of plays by pre-Elizabeth and Elizabethan dramatists exclusive of Shakespeare.	its ENGLISH 384. A study of the An
ENGLISH 325. SHAKESPEARE Three credit A study of selected plays; written reports on others not studied in class. Prerequisite: Eng 152 or 254.	its Prerequisite: E ENGLISH 386. Study of major m
ENGLISH 330.         SEVENTEENTH CENTURY PROSE AND POETRY         A study of the non-dramatic literature of the period.	Prerequisite: E
ENGLISH 335. MILTON Three credit A study of Milton's poetry and major prose.	direction of a staf is required. Prerequisite: A
ENGLISH 341. RESTORATION AND EIGHTEENTH CENTURY DRAMA Three credit Study of the drama from 1660 to 1780.	ts ENGLISH 397.
ENGLISH 343. EIGHTEENTH CENTURY PROSE AND POETRY Three credit The chief poets and essayists of the eighteenth century. Includes Swift, Pope, and Joh	Presentations an Prerequisite: A ENGLISH 398.
ENGLISH 345. EARLY ENGLISH NOVEL Three credit English prose fiction of the sixteenth and seventeenth centuries: rise of the povel to the	Prerequisite: E ENGLISH 400.
close of the eighteenth century.	An introductory of student with the r
Study of Blake, Wordsworth, Coleridge, Shelley, Keats, and Byron, with related pros writers of the Romantic Period.	se ENGLISH 405. S A study of gener
<b>ENGLISH 360. VICTORIAN PROSE AND POETRY</b> Three credit Readings in Tennyson, Browning, Arnold, and other significant writers of the Victoria Age.	ENGLISH 410. S The study of selection

## ENGLISH 366. LATER ENGLISH NOVEL Three credits The major novelists of the nineteenth and early twentieth centuries

ENGLISH 370. MODERN BRITISH POETRY Sludy of the major English and American poetry of the twentieth century.	Three credits
ENGLISH 372. MODERN NOVEL Study of the major English and American novels of the twentieth century.	Three credits
ENGLISH 374. MODERN DRAMA	Three credits Ibsen.
ENGLISH 381. AMERICAN LITERATURE I A study of American literature to the Civil War. Prerequisite: Eng 152 or 254.	Three credits
ENGLISH 382. AMERICAN LITERATURE II Astudy of American literature from the Civil War to the present time. Prerequisite: Eng 152 or 254.	Three credits
ENGLISH 383. AMERICAN NOVEL A study of the American novel from its beginning to the present.	Three credits
ENGLISH 384. AMERICAN DRAMA A study of the American drama from the colonial period to the present. Prerequisite: Eng 152 or 254.	Three credits
ENGLISH 386. MODERN AMERICAN POETRY Study of major movements and representative figures in modern America Prerequisite: Eng 152 or 254.	Three credits an poetry.
ENGLISH 395-396. INDEPENDENT RESEARCH One to Independent study and research for advanced students in the field of the r direction of a staff member. A research paper at a level significantly beyon is required.	<b>o three credits</b> major under the nd a term paper
Prerequisite: Approval of department chairman.	
ENGLISH 397. SEMINAR (Maximum of three credits per student) One to	three credits
Presentations and discussions of selected topics. Prerequisite: Approval of department chairperson is required.	
ENGLISH 398. TOPICS A study of special topics in English and American literature. Prerequisite: Eng 152 or 254.	Three credits
ENGLISH 400. INTRODUCTION TO RESEARCH An introductory course in research and bibliography designed to acquain student with the resources and procedures used in literary research.	Three credits nt the graduate
ENGLISH 405. STUDIES IN LINGUISTICS A study of generative transformational grammar as developed by Chon others resulting from work done by Harris and other structuralists.	Three credits nsky, Lees and
ENGLISH 410 STUDIES IN MEDIEVAL LITERATURE	Three credite

STUDIES IN MEDIEVAL LITERATURE ected topics in Medieval English literature. Three credits

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<b>ENGLISH 420. STUDIES IN RENAISSANCE LITERATURE</b> A study of selected major figures of the English Renaissance.	HISTORY 322. AMERICAN INTELLECTUAL HISTORY Three credits	
ENGLISH 440. STUDIES IN RESTORATION AND EIGHTEENTH CENTURY LITERATURE Three credits A study of selected topics in English literature from 1660 to 1800.	This course is a survey of the formative ideas which seem most to have influenced Ameri- can perceptions of the individual, society, and the drift of human affairs. The focus is upon the late 19th and early 20th centuries because this period is the time when seminal ideas were articulated in America.	
ENGLISH 450. STUDIES IN ROMANTIC AND VICTORIAN LITERATURE Three credits A study of selected major English prose and poetry of the nineteenth century.	HISTORY 324. AMERICAN ECONOMIC HISTORY Three credits A survey of the evolution of the American economy from colonial dependency to modern industrial maturity. Emphasis will be placed upon the development of the United States as	
ENGLISH 470. STUDIES IN MODERN BRITISH LITERATURE         Three credits           A study of selected major British authors of the twentieth century.         Three credits	an industrial world power since about 1850.HISTORY 325. AMERICAN ETHNIC HISTORYThree credits	
ENGLISH 480. STUDIES IN AMERICAN LITERATURE Three credits	A study of the institutions and problems that have characterized various immigrant, black, and Indian communities from colonial times to the present.	
to contemporary authors.	HISTORY 326. URBAN HISTORY Three credits	
<b>ENGLISH 497. SEMINAR IN SPECIAL PROBLEMS</b> One to three credits This course is designed for intensive research in any specific area of English or American literature.	A survey of the origins and development of the modern city. Primary emphasis is given to the evolution of the city in America and its influence on American society and culture. Reference is made to the cities of modern Europe and Asia primarily for comparative purposes.	
History Joel Berlatsky, (Ph.D.) Chairman	HISTORY 328. HISTORY OF THE FOREIGN POLICY OF THE UNITED STATES Three credits	
Master of Science in Education	A selective treatment of major themes in American foreign policy from the founding of the Republic to the present.	
SPECIAL DEGREE REQUIREMENTS Candidates for the degree of Master of Science in Education with a	HISTORY 331. COLONIAL AMERICA Three credits Discovery, exploration and settlement; development of social, political, religious and intel- lectual institutions; independence and political reorganization.	
history and six hours of political science in courses numbered 300 or above. Information on requirements of the Education Department for the Mas	HISTORY 332. THE NATIONAL PERIOD Three credits A study of the political and economic history of the United States from 1783 to 1865. Spe- cial attention will be given to the evolution of sectional differences and the culmination of these differences in intersectional warfare.	
ter of Science in Education, major in history, will be found under Educa- tion on page 21.	HISTORY 333. THE AGE OF BIG BUSINESS, 1865-1914         Three credits           A study of the political and economic history of the United States from 1865 to 1914. Spe-         1865 to 1914. Spe-	
COURSES OF INSTRUCTION	cial attention will be paid to the period of congressional dominance and the restoration of presidential power at the turn of the century: the economic, social and political conse-	

## HISTORY 315. ANCIENT HISTORY: NEAR EAST

Three credits The birth of civilization in Mesopotamia and Egypt. Babylonian, Persian and Judaic backgrounds of western civilization. Attention will also be paid to certain lesser civilizations. with emphasis on the role of archeology.

#### HISTORY 316. ANCIENT HISTORY: CLASSICAL WORLD Three credits

The direct Greco-Roman antecedents for western civilization will be developed, beginning with Mycenae, through Homer, the Golden Age, Hellenistic world, and the rise and fall of Rome. Emphasis will be on the cultural contributions of each group and period to our present world.

## HISTORY 321. AMERICAN SOCIAL HISTORY

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## to modern d States as

## ee credits is given to nd culture. arative pur-

## e credits ding of the

## e credits

## ee credits

## e credits

1914. Spetoration of power at the turn of the century; the economic, social and political consequences of the industrial revolution; and the rise or urban America.

## HISTORY 334. THE UNITED STATES, 1900-1945

Three credits The emergence of the United States as a world power and the corresponding development of its political, economic, social, and religious institutions.

## HISTORY 341-342. HISTORY OF GREAT BRITAIN AND THE

BRITISH EMPIRE AND COMMONWEALTH Three credits each semester A study of British history from the Neolithic period to present times. The first semester will cover social, economic, and political developments to 1783, including expansion overseas. The second semester will cover the consequences of the industrial revolution and the evolution of the Empire into the Commonwealth.

Three credits

This course entails a consideration of the development of American society from the colonial period until present times. Attention will focus especially on the rise of industrialism and its impact on society in the late nineteenth and twentieth centuries.

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#### HISTORY 348. HISTORY OF RUSSIA

#### Three credits

Astudy of the political, social, and intellectual history of Russia. Emphasis is placed upon the emergence of Russia as a major power after 1700.

33

## HISTORY 351. MEDIEVAL EUROPE

Three credits Consideration will be given to political, economic, and cultural institutions and activities, and intellectual development in Medieval Europe to the early Renaissance.

## HISTORY 352. THE RENAISSANCE AND REFORMATION

Within the political and economic framework of the period, study will be made of the cul-Three credits ture of the Renaissance, the religious reform and conflicts resulting from the crisis in the sixteenth century.

## HISTORY 353. AGE OF ABSOLUTISM

**Three credits** The political, social, economic, intellectual, and cultural development of Europe and dependencies from 1600 to ca. 1750.

### HISTORY 354. THE ERA OF THE FRENCH REVOLUTION AND NAPOLEON

Three credits A study of the structure of the Ancien Regime and an examination of the courses, events, and consequences of the French Revolution culminating in the Napoleonic Empire.

## HISTORY 355. EUROPE IN THE NINETEENTH CENTURY

Three credits A study of the political, social, and cultural development of Europe from the Congress of Vienna to World War I.

## HISTORY 356. EUROPE IN THE TWENTIETH CENTURY

**Three credits** Against a background of the internal and international developments of the leading powers, the class will study the origins and results of the two World Wars.

## HISTORY 361-362.

HISTORY OF THE FAR EAST Three credits each semester A study of the history of the civilizations developed in India, China, and Japan with emphasis on their interrelations and distinctive characteristics and on their transformation in response to the penetration of western civilization from the sixteenth century onward. Some attention will be given to similar developments and changes among the countries of Southeast Asia. Fall semester: to c. 1760. Spring semester: 1760 to present.

## HISTORY 363. HISTORY OF MODERN CHINA

A study of Chinese history since 1840 with special emphasis on social, political, eco-Three credits nomic, and intellectual developments.

## HISTORY 364. DIPLOMATIC HISTORY OF THE FAR EAST

A study of the relationship of the states of the Far East with one another and the West in the nineteenth and twentieth centuries.

## HISTORY 365. HISTORY OF CHINESE COMMUNISM

Three credits This course is designed to examine the origins of Chinese Communism, the rise of the Chinese Communist Party to national power, and the essential features of Mao Tse-tung's strategies and policies.

## HISTORY 367. MODERN SOUTH ASIA

Three credits A study of the political, social, and economic development of the Indian sub-continent

## HISTORY 376. WORLD WAR II

Three credits Consideration of the causes of the war, military strategy and tactics, diplomatic interests of the participants, and resulting cold war problems.

#### HISTORY 382. HISTORY OF LATIN AMERICA

This course is a survey of the development of Latin American political, cultural, and economic life, from ancient times, through the Iberic colonization and period of independence, to the tumultuous era of the mid and late 20th century.

## HISTORY 391. HISTORIOGRAPHY AND RESEARCH

An introduction to historical research and writing. The writings and ideas of major historians of the past and present are examined. The student is exposed to research methods. particularly in the area of primary sources, and to the construction and criticism of the historical monograph.

#### HISTORY 395-396. INDEPENDENT RESEARCH

### One to three credits

One to three credits

**Three credits** 

**Three credits** 

**Three credits** 

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Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required.

## HISTORY 398. TOPICS

Special topics in history. This course will be offered from time to time when interest and demand justify it.

### HISTORY 497. SEMINAR

Presentations and discussions of selected topics. (May be repeated for credit.) Prerequisite: Approval of the instructor is required.

## **Political Science**

Joel Berlatsky, (Ph.D.) Chairman

## **COURSES OF INSTRUCTION**

#### PS 301. POLITICAL DYNAMICS

A study of the various modes of citizen political participation in the United States. The role of public opinion, voting, political parties, interest groups, and political movements will be examined and evaluated. Case studies will be introduced throughout.

Prerequisite: PS 102. Offered in alternate years.

#### PS 307. THE AMERICAN PRESIDENCY

An exploration and analysis of the development and changing role of the American President as political leader, decision-maker, world leader. Examines the selection and election process and the effect of this process on the Presidency.

Prerequisite: PS 102 or consent of instructor. Offered in alternate years.

## PS 312. INTERGOVERNMENTAL RELATIONS

Analysis of the process by which multiple public jurisdictions interact in the United States. Federal System, and the impact of this process on public policy.

Prerequisite: PS 102. Offered in alternate years.

#### PS 314. PLANNING IN URBAN DEVELOPMENT

### Three credits

Origins and evolutions of city planning, influences of urban growth, legal and institutional framework, and scientific and philosophical premises. Survey of city planning as it has evolved in the United States since 1800 in response to physical, social, and economic problems

Prerequisite: PS 102. Offered in alternate years.

Three credits

**Three credits** 



## **PS 316. GOVERNMENT BUDGETING**

Three credits An examination of the political and administrative aspects of the government budgeting process, including the possibilities and consequences of recent budgetary reforms. Prerequisite: PS 102 or consent of instructor.

Offered in alternate years.

## PS 318. PUBLIC PERSONNEL ADMINISTRATION

**Three credits** Description and analysis of public personnel: methods of recruitment, assignment, promotion; the relation of the personnel function to its environment; the public service character of government employees.

Prerequisite: PS 102 or consent of instructor. Offered in alternate years.

### PS 323. DEMOCRATIC SYSTEMS

Comparison of the development, institutions, problems, and prospects of democratic systems in the modern world and their relation to capitalist-industrial society. Focus is on Great Britain, France, West Germany, and Japan with some attention to the Scandinavian democracies, Italy, and British Commonwealth nations.

Prerequisite: PS 102 and 105 or consent of instructor. Offered in alternate years.

## PS 324. COMMUNIST SYSTEMS

Analysis of the social and political conditions out of which the major Communist systems in the Soviet Union and in China developed. Marxism, Leninism, Maoism. Examines the common elements, the differing elements, problems and prospects of the two nations and their interrelationship with each other and other countries of the world. Some attention to Communism in Eastern Europe, and the Third World.

Prerequisite: PS 105 or consent of instructor.

Offered in alternate years.

## PS 325. POLITICS OF DEVELOPING AREAS

The political process in the lesser-developed areas of the world: Asia, Africa, and Latin America. Examines the problems of economic and political change and the relations of these areas to the Western world and the Communist states

Prerequisite: PS 105 or consent of instructor. Offered in alternate years.

#### HST 328. U.S. FOREIGN POLICY

See description under History.

## PS 329. INTERNATIONAL LAW AND ORGANIZATION

A study of the nature, application, and sources of public international law and how it relates to the evolution of global and regional organizations and alliances, including international non-governmental organizations and other non-state actors.

Prerequisite: PS 202 or consent of instructor.

Offered in alternate years.

## PS 331. CONSTITUTIONAL LAW I

Three credits Study of the growth and change of the American Constitution through analysis of the leading cases decided by the U.S. Supreme Court. Analysis of the powers of the three branches of government and the relations between the states and the Federal Government.

Prerequisite: PS 102 or consent of instructor Offered in alternate fall semesters.

#### PS 332. CONSTITUTIONAL LAW II

Continuation of the study of the meaning of the Constitution as interpreted by the Supreme Court. Analysis of the landmark decisions regarding free speech and press, separation of church and state, rights of persons accused of crime, equal protection of the laws, voting rights

Prerequisite: PS 102 or consent of instructor. Offered in alternate spring semesters.

#### PS 335. AMERICAN POLITICAL THOUGHT

from the American experience. Analysis of the ways of thought which underlie our political institutions and practices.

Prerequisite: PS 102 or consent of instructor. Offered in alternate years.

#### PS 353. POLICY FORMATION IN THE LEGISLATURE

Analysis of the policy-making process in the legislature, focusing on case studies of the process in the U.S. Congress. Internal processes and external influences. Prerequisite: PS 102 or consent of instructor. Offered in alternate years.

#### PS 354. ADMINISTRATIVE LAW AND POLICY

Analysis of the ways in which public policy is made and effected in administrative agencies, of the ways in which the public administrator operates and the linkage between administrative organizations and other policy-makers and influencers of policy. Prerequisite: PS 102 and 218 or consent of instructor.

Offered in alternate years.

#### PS 394, PRACTICUM

Three credits

Three credits

Three credits

**Three credits** 

Three credits

#### Three to six credits

Internship or similar experience in administrative office, community agency, election campaign, or work related to administration or politics.

Prerequisite: At least 4 courses in PS or in Urban Studies, or in a field in which internship will be served, such as Earth and Environmental Sciences. Student must consult with department before registering. Offered every semester.

#### PS 395-396. INDEPENDENT RESEARCH

#### One to three credits

Independent study and research for advanced students in the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is re-

Prerequisite: Approval of department. Offered every semester.

## PS 397. SEMINAR

Presentations and discussions of selected topics by students

#### PS 198/298/398. TOPICS IN POLITICAL SCIENCE/ **TOPICS IN POLICY ANALYSIS**

#### Variable credit

**Three credits** 

A study of topics of special interest not extensively treated in regularly offered courses. Examples of possible topics would be: leadership in Congress; minorities in the political process; women and power; urban design; The First Amendment in law and practice; equality at law in an unequal society; Marxism, etc. May be repeated when topics differ. A topics course in a specific field of public policy, such as Energy, Environmental Science, Mental Health and Retardation, etc., will be offered also.



Three credits

### **Three credits**

**Three credits** 

**Three credits** 

Study of the political ideas, ideals, and ideologies as they contributed to and developed



## **Mathematics**

## Richard E. Sours, (Ph.D.) Chairman

**Master of Science** 

## Master of Science in Education

## THE COURSES OF STUDY ARE INTENDED FOR:

- a. students who plan to continue their studies beyond the master level
- b. teachers of secondary or junior college mathematics who seek to strengthen their subject-matter competence, or
- c. persons seeking a terminal master degree to further their career in industry or government.

## ADMISSION

An applicant should have a baccalaureate degree from an accredited college or university. He is expected to have completed courses in advanced calculus or real variables and in modern and linear algebra. Students with a weak mathematical background may be required to make up certain deficiencies before being admitted to candidacy.

## **DEGREE REQUIREMENTS**

a. Master of Science — with a major in Mathematics:

A minimum of thirty credits of approved courses in Mathematics or Computer Science is required. All candidates are required to complete Mth 311, 331, and 334, or the equivalent, if they have not done so as undergraduates. At least six credits, exclusive of those for the optional thesis, must be in courses numbered above 500. No more than twelve credits of the 300-level courses may be applied towards this degree.

b. M.S. in Education — with a major in Mathematics:

A minimum of thirty credits of approved courses, to be distributed as follows, is required.

- 1. Education courses: 12 credits six credits in Area I three credits in Area II three credits in Area IV
- 2. Mathematics or Computer Science courses: 18 credits At least three credits must be in courses numbered above 400.

## **COURSES OF INSTRUCTION**

#### MATHEMATICS 311. FUNCTIONS OF A REAL VARIABLE **Three credits** A rigorous study of the topology of the real line, limits, continuity, differentiation, integration, and series of functions.

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MATHEMATICS 314. FUNCTIONS OF A COMPLEX VARIABLE Three credits Complex functions, limit, continuity, analytic functions, power series, contour integration, Laurent expansion, singularities and residues.

## MATHEMATICS 331.

INTRODUCTION TO ABSTRACT ALGEBRA I A study of elementary number theory, groups, rings, and fields.

#### MATHEMATICS 342. INTRODUCTION TO TOPOLOGY

Metric spaces, topological spaces, countability and separation axioms, compactness, connectedness, product spaces, Prerequisite: Mth 311 or consent of instructor.

## MATHEMATICS 343. INTRODUCTION TO GEOMETRY

**Three credits** A study of selected topics from Euclidean geometry, affine geometry, projective geometry, and convexity.

MATHEMATICS 351-352. PROBABILITY AND MATHEMATICAL STATISTICS I AND II

#### Three credits each Random variables, probability distributions, expectation and limit theorems, estimation,

testing statistical hypotheses, confidence intervals.

#### MATHEMATICS 361-362. **INTRODUCTION TO APPLIED MATHEMATICS I & II**

#### Three credits each semester

**Three credits** 

Three credits

Three credits

Mathematics of physical science and engineering. Topics include: vector integral and differential calculus, power series, partial differential equations, Fourier analysis, and eigenvalue problems.

#### MATHEMATICS 364. NUMERICAL ANALYSIS

Numerical methods of differentiation, integration, solution to equations and of differential equations with emphasis on problems that lend themselves to solution on computers. Prerequisite: A course in elementary differential equations and knowledge of Fortran.

#### MATHEMATICS 413. FUNCTIONS OF SEVERAL VARIABLES Three credits

A modern treatment of calculus of functions of several real variables. Topics include: Euclidean spaces, differentiation, integration and manifolds leading to the classical theorems of Green and Stokes.

Prerequisite: Mth 311 and 334.

#### MATHEMATICS 432. INTRODUCTION TO ABSTRACT ALGEBRA II

#### Three credits

A continuation of Mathematics 331. Polynomial rings, ideals, field extensions and Galois Theory.

Prerequisite: Mth 331.



## MATHEMATICS 470.

**READINGS IN MATHEMATICS** 

Three credits per semester Individual study of an outstanding text under the supervision of a faculty member. Designed for students who have completed a substantial amount of course work in mathematics

Prerequisite: Consent of department chairman.

### MATHEMATICS 511. MEASURE AND INTEGRATION

Three credits Measures, measurable functions, integration, convergence theorems, product measures, signed measures.

Prerequisite: Mth 342, or consent of instructor.

## MATHEMATICS 513. FUNCTIONAL ANALYSIS

Topics include: Banach spaces, Lp-spaces, Hilbert spaces, topological vector spaces, and Banach algebras. Prerequisite: Mth 311 and 334.

## MATHEMATICS 532. MODERN ALGEBRA

A study of group theory (including the Sylow Theorems and solvable groups); ring theory (including the Noetherian rings and UFDs); modules, tensor algebra, and semi-simple rings.

Prerequisite: Mth 331 and 334, or consent of instructor.

#### MATHEMATICS 542. ALGEBRAIC TOPOLOGY

Polyhedra, simplicial homology theory, cohomology rings, and homotopy groups. Prerequisite: Mth 342.

## MATHEMATICS 398/498/598. TOPICS IN MATHEMATICS

A wide range of topics in pure and applied mathematics may be offered upon demand. May be repeated for credit.

## Prerequisite: Consent of instructor.

MATHEMATICS 590. THESIS Prerequisite: Consent of department chairman.

Three or six credits

Three credits

Three credits

Three credits

Three credits

Variable

The following computer science courses may be taken as part of either Masters' degree in Mathematics or Mathematics Education.

## CS 321. SIMULATION AND DATA ANALYSIS

Methods of handling large data bases including statistical analysis and computer simulations. The emphasis will be upon discrete simulation models with a discussion of relevant computer languages, GPSS, GASP, SIMSCRIPT and/or SLAM. Prerequisite: CS 223, 224, or 225 and one year of calculus.

#### CS 323. FORMAL LANGUAGES AND AUTOMATA THEORY Three credits

This course formalizes many topics encountered in previous computing courses. Topics include: languages, grammars, finite automata, regular expressions and grammars, context-free languages, push-down automata, Turing machines and computability.

Prerequisite: Mth 202 and CS 225.

#### **CS 327. COMPILER DESIGN**

#### A study of compiler design including language definition, syntactic analysis, lexical analysis, storage allocation, error detection and recovery, code generation and optimization problems

Prerequisite: CS 227 and 323.

## **CS 328. ANALYSIS OF ALGORITHMS**

#### Theoretical analysis of various algorithms. Topics are chosen from sorting, searching, selection, matrix multiplication and multiplication of real numbers, and various combinational algorithms.

Prerequisite: CS 227.

#### **CS 367. COMPUTER GRAPHICS**

#### Introduction to equipment and techniques used to generate graphical representations by computer. Discussion of the mathematical techniques necessary to draw objects in two and three-dimensional space. Emphasis on application programming and the use of a high-resolution color raster display.

Prerequisite: CS 227/EE 343. Offered in the fall semester of even years.

### Five-Year B.S.-M.S. Degree — Mathematics Major

This program is designed for those who wish to attain a B.S. and an M.S. degree with a major in Mathematics at Wilkes and will enable them to complete all requirements for both degrees in at most five years. A mathematics major may apply for admission into this combined program during the sixth or the seventh term if he/she has a minimum average of 3.00 in all mathematics courses numbered above 300 and an overall average of 2.60 at the time of application. A form for this purpose is available from the department chairman.

All requirements for both degrees must be met. In addition, Mth 511 and 532 are required. No credit shall be counted in both degree programs. Scheduling will be done so that the student will be eligible to receive a B.S. degree at the end of four years.

## Three credits

Three credits

**Three credits** 

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## School of Business and Economics

Theodore J. Engel, (MBA, M.A.) Dean

## **Program Coordinators**

Accounting Business Administration Economics MBA

Kenneth A. Broadt (M.S., C.P.A.) Theodore J. Engel (MBA, M.A.) Welton Farrar (M.S.) Wagiha Taylor (Ph.D.)

## **Programs**

## Master of Business Administration

The curriculum leading to the Master of Business Administration Degree provides an opportunity for specialization in a selected field but is concerned mainly with advanced study of broad managerial concepts and relationships. The purposes are:

- 1. to develop professional managers, with emphasis on the foundation, organization, operation, and control of an enterprise;
- to develop individuals trained in research and constructive leadership;
- 3. to enable individuals to create and evaluate alternative courses of action as a procedure for making decisions.

The program is designed to provide management education at the master's level not only for those who have had undergraduate training in business and economics, but also for interested engineers, scientists, and others who have a minimum amount of background education in this area.

Each student upon admission to the program will be assigned an advisor to guide him in the program.

## ADMISSION

A candidate for the M.B.A. degree who is a graduate of an approved college or university and who has had basic courses in accounting, business law, managerial finance, economics, marketing, money and banking, computer programming, and statistics will probably have an adequate background to complete the requirements or a degree in two years.

## Background Undergraduate Course Requirements for Candidates in Master of Business Administration Program:

Accounting	1 year
<b>Business Law</b>	1 semester
Economics	1 year (Principles)
Statistics	1 semester

Managerial Finance1 semesterMoney and Banking1 semesterMarketing Principles1 semesterComputer Programming1 semester

If a student has not taken one of the above courses but believes that he possesses the information normally taught in that course, he may request a challenge examination. Interested students should contact the department chairman. A fee of \$20 per credit will be assessed for each challenge examination. Students requesting a challenge examination must present a receipt from the Finance Office before the examination will be administered.

The grade of D or D + in any of the background undergraduate courses will not be accepted. It is advisable that the student should start with the background undergraduate courses, then take the core courses and proceed to the electives.

### **DEGREE REQUIREMENTS**

All candidates for the Master of Business Administration Degree must complete a total of thirty credits of graduate work in 500-level courses. Fifteen of these thirty credits must be in core courses. All candidates must complete Accounting 503 or an advanced Accounting course; Business Administration 502; Business Administration 507; Economics 505; and Economics 510. (Students with a minimum preparation in Accounting are urged to take Accounting 503; students with twelve or more credits earned in Accounting 503; students with twelve or more credits substitute Accounting 542, 543, 544, 545 or 546.) The other fifteen of the thirty credits must be drawn from one or more areas of specialization. At least six credits must be in one concentration. The remaining nine credits may be allocated among the concentrations in any fashion.

A graduate student in Business Administration is required to pass a written comprehensive examination covering the broad field of business administration. This examination is given during the spring semester. The fee for the examination is \$10. The comprehensive exam registration form is available at the Graduate Office. Students are required to fill out this form.

Students who are registered for or plan to complete their final graduate course work for the Degree of Master of Business Administration during the autumn semester may take this examination the preceding spring. A student who fails the comprehensive examination may retake it only once.



## **Business Administration**

## COURSES OF INSTRUCTION

## CORE COURSES (15 semester hours required)

## ACC 503. FINANCIAL AND MANAGERIAL ACCOUNTING

A basic understanding of both internal and external accounting principles and techniques with appropriate application to decision models. Financial and managerial accounting concepts and issues are considered from the viewpoint of the report user.

Undergraduate Requirements: 2 semesters of Accounting Principles,

1 semester of Managerial Finance.

Three credits

Three credits

Students with 12 credit hours or more of accounting must fulfill the accounting core requirement by taking one of the following: Acc 542, Acc 543, Acc 544, Acc 545 or Acc 546. (No topics or independent research.)

#### BUSINESS ADMINISTRATION 502. MANAGEMENT SCIENCE Three credits

As an introductory survey of quanitative decision-making techniques and appropriate applications from the perspective of the user-client. Emphasis is upon the construction of optimization and decision models and the development of efficient solution algorithms. Undergraduate Requirements: Computer Science.

#### BUSINESS ADMINISTRATION 507. BUSINESS AND SOCIETY Three credits

This course deals with the problems of the responsible business manager in a private enterprise society, particularly those problems dealing with policy-making and administration when both economic and non-economic factors are involved. Questions are raised as to the kinds of responsibility and the extent of responsibility business managers have to the goals of our society, to the communities in which they operate, to the people they employ, and to governmental policies, as well as to the stockholders of their own

Undergraduate Requirements: Business Law.

#### ECONOMICS 505. MANAGERIAL STATISTICS Three credits

An introductory graduate course in techniques, limits, and areas of application of statisti-

cal techniques.

## Undergraduate Requirements: Statistics.

## ECONOMICS 510. MANAGERIAL ECONOMICS

Problems of the firm. Price and output determination with analysis of cost and demand functions in markets of various types and under various conditions of business. The course will deal with the application of economic theory to business practice.

Requirements: 2 semesters of Economics, BA 502, Ec 505.

## The formal policy of The School of Business and Economics is that all core courses must be taken in the traditional fashion. They may not be taken on an independent study basis.

## **AREA I — MARKETING SPECIALIZATIONS**

## **BUSINESS ADMINISTRATION 511.**

MODERN INTERNATIONAL COMMERCE

**Three credits** This course is designed to introduce the student to the practical princip

#### **BUSINESS ADMINISTRATION 512.** PRICE POLICY AND PROCEDURE

**Three credits** This course describes the basic pricing process, relates it to pricing decisions, and attempts to provide a systematic pricing program for managers to follow. Topics covered will include internal and external factors in pricing decisions, pricing models in various kinds of market structure, the special problems of manufacturers and distributors, as well as the management of resources used in the production process and hiring decisions.

## **BUSINESS ADMINISTRATION 513.**

#### HUMAN BEHAVIOR AND THE MARKETING PROCESS

This course deals with the behavior of man in social groupings and as an individual entity. Processes such as learning, perception, motives, personality, and intelligence will be studied particularly as they relate to marketing problems and procedures.

#### **BUSINESS ADMINISTRATION 514.** MARKET RESEARCH AND EXPERIMENTATION

This course deals with the experimental techniques that can be applied to the planning, execution, and analysis of marketing problems. Modern concepts of statistical decision theory and survey techniques are included.

### **BUSINESS ADMINISTRATION 515**

MARKETING MANAGEMENT SEMINAR

**Three credits** 

Three credits

Three credits

Three credits

This seminar deals with the planning, organizing, directing, and controlling of resource utilization as it applies to the marketing function. Students share responsibility for asimilating and presenting material for discussion.

## **BUSINESS ADMINISTRATION 516.**

#### MARKETING SIMULATIONS

This is a course in "marketing game-playing". Class time is divided between lectures on marketing strategy and participation in a marketing game. Students work in groups as "companies" and make decisions relative to production levels, promotion techniques, distribution systems, product features, and pricing policies.

## AREA II — MANAGERIAL SCIENCE

#### **BUSINESS ADMINISTRATION 521. ORGANIZATIONAL THEORY**

#### **Three credits**

This course utilizes the "case analysis" approach in dealing with the theories of organizational structures as they apply to planning utilization of resources, employee motivation, and strategy development

## **BUSINESS ADMINISTRATION 522.**

## QUANTITATIVE ASPECTS OF MANAGEMENT

**Three credits** 

This course examines the quantitative aspects of management. It analyzes the optimization of management decisions in the operation of the firm.

#### **BUSINESS ADMINISTRATION 523.** MANAGEMENT SEMINAR I

#### **Three credits**

This seminar brings to bear current management techniques on a variety of problems. Students will be guided in theoretical readings and will apply their knowledge in seminar discussions

of international marketing. Subjects covered will include the development and management of exports and imports, channels of trade, the mechanics of international finance, foreign credits, technical procedures and documentation.

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#### **BUSINESS ADMINISTRATION 524.** MANAGEMENT SEMINAR

Three credits

This seminar has a research orientation. Research, objectives, techniques and methodology will be dealt with.

## **BUSINESS ADMINISTRATION 525.** HUMAN RESOURCE MANAGEMENT

A survey of the activities and decision-making functions of the human resources man-Three credits ager, including manpower planning, employee rights, EEOC dealings, training and development, employee evaluation techniques, compensation packages, and recruitment of personnel.

## AREA III - LABOR

Three credits

**Three credits** 

## ECONOMICS 506. LABOR-MANAGEMENT ECONOMICS

A course dealing with issues and trends in collective bargaining and industrial relations today. The shifting roles and relationships of labor-management and government will be dealt with. Problems of maintaining the labor force and the social aspects of industry will

## ECONOMICS 531. INDUSTRIAL RELATIONS AND THE LAW

An in-depth study of labor legislation, federal, state, and local. Emphasis will be placed on **Three credits** recent N.L.R.B. decisions and precedents.

## ECONOMICS 532.

WAGE DETERMINATION AND ADMINISTRATION Three credits A study of economic and institutional forces determining wages. Wage theories are ana-

## lyzed. Problems of wage administration will be dealt with. ECONOMICS 533. THE LABOR MARKET

Economic and non-economic forces influencing labor supply and demand will be stud-

ied. Determinants of the labor force, unemployment, labor mobility, and the functioning of the labor market will be investigated.

## ECONOMICS 534. LABOR SEMINAR

**Three credits** This seminar deals with current issues and theoretical concepts in industrial relations.

## AREA IV - ACCOUNTING

## ACCOUNTING 561. CORPORATE FINANCIAL REPORTING

**Three credits** The study of corporate reporting practices and principles in contemporary accounting. Special attention is given to the authoritative pronouncements of the Financial Accounting Standards Board and the Securities and Exchange Commission.

## Prerequisite: 12 credit hours of accounting.

ACCOUNTING 562. FINANCIAL AND TAX PLANNING

Analysis of federal tax regulations and interpretations. Stress will be placed upon the tim-**Three credits** ing of business transactions and the tax implications in choosing financial alternatives

## ACCOUNTING 563. ACCOUNTING POLICIES AND PRACTICES Three credits

A review of generally accepted auditing standards and the theories supporting them. Includes application of auditing techniques and the legal liabilities of the auditor. In addition, the role of the internal auditor, with an emphasis on the objectives, organization, and operation of the internal audit in the private sector, will be examined.

Prerequisite: 12 credit hours of accounting.

#### ACCOUNTING 564. EVOLUTION OF ACCOUNTING THOUGHT Three credits A comprehensive review of the way in which accounting policies, practices, and ideas have developed over time.

Prerequisite: 12 credit hours of accounting

## ACCOUNTING 565. PROFESSIONAL SEMINAR

Discussion of current accounting research, literature and theory, consideration of the role of the accountant in management advisory services.

#### ACCOUNTING 566. ACCOUNTING INFORMATION SYSTEMS **Three credits** An examination of the systems employed to process and sort business events so as to provide the functions of financial reporting, internal responsibility accounting, decision support, internal control, and modeling. No Prerequisites.

## **AREA V** — FINANCE

## **BUSINESS ADMINISTRATION 551.**

INVESTMENT AND PORTFOLIO MANAGEMENT Three credits An examination of the methods of security analysis and market timing for both speculative and investment-quality instruments. Focus is upon traditional techniques of portfolio management, as well as Modern Portfolio Theory.

#### **BUSINESS ADMINISTRATION 552.** FINANCIAL MANAGEMENT

An investigation into the theories and techniques of financial planning and analysis. Working capital management and cash budgeting are given special attention. Also emphasized are capital budgeting issues, such as capital asset acquisition, capital structure considerations, and the evaluation of financing options.

#### **BUSINESS ADMINISTRATION 553.**

THE BEHAVIOR OF FINANCIAL MARKETS AND INSTITUTIONS Three credits An analysis of the structural relationships between and among financial enterprises, including the role of government regulators. Focus is upon the dynamics of the funds allocation process and the decision-making procedures of financial managers.

**BUSINESS ADMINISTRATION 554** MANAGERIAL FINANCE SEMINAR

#### Problems in managerial finance. Special topics.

**BUSINESS ADMINISTRATION 557.** 

### PENSION ADMINISTRATION

The problem of the superannuated employee is central. Social Security is viewed as underiving the solution of the problem. Defined benefit and defined contribution plans arising from employer responsibility are stressed.

#### **BUSINESS ADMINISTRATION 558. RISK MANAGEMENT**

**Three credits** 

**Three credits** 

**Three credits** 

Avoidance, retention, hazard reduction and transfer for dealing with risk are stressed throughout. Balance sheet losses, income statement losses and third-party tort liability problems are analyzed with goals of selecting optional solutions.

**Three credits** 



## **AREA VI — HEALTH CARE**

The Health Care Concentration requires nine credits in Health Care designated courses, distributed as three credits in each of three defined sectors.

#### Sector I Distribution

HSA 503. Health Economics HSA 520. Health Care Marketing

HSA 521. Health Care Product Development

#### Sector II Administration

HSA 501.	Leadership and Human Resource Management
	In Health Care Institutions
HSA 504.	Strategic Planning
HSA 540.	Labor/Management Relations in Health Care
Sector III	Planning and Finance
HSA 502.	Financial Management Seminar
HSA 504.	Strategic Planning for Health Care Institutions
1104 500	Final Handler Contraction of the

- HSA 530. Financing Health Care
- HSA 531. Accounting for Health Care Institutions
- HSA 532. Strategies for the Financial Managerial of Health Care Institutions

A maximum of 9 credits in Health Care designated courses may count toward satisfaction of the MBA degree requirements.

See section on Master of Health Service Administration for description of the Health Care concentration courses.

#### **Special Courses**

#### **ACCOUNTING 550. TOPICS**

Special topics in accounting. This course will be offered from time to time as interest and demand justify it.

#### ACCOUNTING 595. INDEPENDENT RESEARCH

Independent study and research for advanced students in the field of the major under the direction of a staff member.

#### **BUSINESS ADMINISTRATION 508. MANAGEMENT INFORMATION** SYSTEMS (See Computer Science 408) Three credits

A general introduction intended to acquaint managers with the characteristics, selection, implementation, potentials, limitations and effects of modern management information systems.

Prerequisite: Admission to the MBA program or permission of The School of Business and Economics or the Department of Mathematics and Computer Science. No computer programming background is assumed.

#### **BUSINESS ADMINISTRATION 550. TOPICS**

Special topics in business administration. This course will be offered from time to time as interest and demand justify it.

**Three credits** 

#### **BUSINESS ADMINISTRATION 595.** INDEPENDENT RESEARCH

#### Three credits Independent study and research for advanced students in the field of the major under the direction of a staff member.

Three credits **ECONOMICS 550. TOPICS** Special topics in economics. This course will be offered from time to time as interest and demand justify it.

#### ECONOMICS 595. INDEPENDENT STUDY **Three credits**

Independent study and research for advanced students in the field of the major under the direction of a staff member.

## **Health Service Administration**

## **Master of Health Service Administration**

The Curriculum leading to the MHA provides opportunities for specialized professional studies for current and future executives in the health care and related industries. The objectives of the program are:

- 1. to develop expert managers skilled in organizational leadership, the assessment of community needs, and the delivery of quality service;
- 2. to deepen and broaden the MHA candidates' managerial and decision-making techniques.

The program is transdisciplinary in design but physically resides in the Commerce and Finance Department under the cooperative aegis of the Chairman of the Commerce and Finance Department and the MHA Academic Coordinator. Although the study of Accounting, Finance, Operations Management, Marketing, and Human Resources Management are emphasized, opportunities exist for candidates to explore other academic areas at their discretion.

#### **ADMISSIONS**

Three credits

Three credits

Candidates are required to have a baccalaureate from an accredited institution. All applicants must demonstrate both a history of above average academic performance and the intellectual capacity for graduate studies.

An application for admission to graduate degree study at Wilkes College must be filed, along with all supporting documents, with the Division of Graduate Studies' office no later than July 15, preceding the fall semester, and November 15, preceding the spring semester. Applicants who file after the above mentioned dates may not be considered for admission to degree programs for the corresponding semester.



## Admission to graduate study involves the following:

- 1. Completed Wilkes College Graduate Division Application for Admission (available from the graduate office) and payment of an application fee of \$25 must be submitted to the graduate office.
- 2. Along with the application the student should submit a professional/ career goal statement. The goal statement should contain:
  - What are your basic goals?
  - How have you acquired these skills?
  - Which skills are you hoping to acquire?
- What do you hope to achieve and do with the M.H.A.?
- 3. Graduates of colleges and universities must request that transcripts of undergraduate and any post-baccalaureate work be sent to the Graduate Office, Wilkes College, P.O. Box 111, Wilkes-Barre, Pennsylvania 18766. Two letters of recommendation must be submitted to the graduate office by each applicant applying for admission to degree study. Forms of recommendation are available from the graduate office.

Once the graduate office receives all of an applicant's required documents, the credentials of the applicant will be reviewed and a final decision regarding admission to the degree program will be transmitted to the applicant. A student will be immediately assigned to a faculty program advisor.

## M.H.A. Admission Criteria

An undergraduate degree in business will be helpful, however, nonbusiness majors are encouraged to apply. If any prerequisite courses are needed, this will be determined by the student and his/her advisor.

## DEGREE REQUIREMENTS

All MHA candidates must complete a total of 36 graduate credits comprised of 18 core credits, 9 concentration credits, and 9 elective credits. The core contains 6 multidisciplinary courses. There are 3 concentration areas: Long-Term Care Administration, Health Care Marketing, and Health Care Finance. The electives constitute a variety of courses that meet the needs of an eclectic student body. An internship (6 credits) also is available for those not currently employed in a health service organization.

### **COURSES OF INSTRUCTION**

### CORE COURSES (18 credits required)

#### HSA 500. NATIONAL HEALTH POLICY

#### Three credits

The health care industry is becoming the largest segment of our American economy. The course seeks to introduce all important areas of this industry. Areas to be covered include: Medical personnel, allied health personnel, reimbursement techniques, public health activities, nursing homes, hospital management, and the future of the health care industry. (Offered every summer)

## HSA 501. LEADERSHIP AND HUMAN RESOURCE MANAGEMENT

This course will attempt to develop management approaches developed in industrial organizations and modify them appropriately for usage in health-service organizations. Management of health services, like the management of industrial organizations, requires an integrated approach combining insights from several basic disciplines while accounting for the unique characteristics of health-service organizations. The objectives of this course will be to provide a survey of concepts and methodologies basic to the managerial disciplines of organizational behavior, operational research, financial management and the law — all directly applicable to the management of health-service organizations. (Offered every fall)

#### SOC 540. MEDICAL SOCIOLOGY

#### **Three credits**

Surveys finding and methods in current applications of sociology to medicine. Includes a consideration of micro and macro scale social influences on the organization of medical institutions and practices. Considers such topics as the methods of sociomedical research; the nature of the patient-practitioner relationship; authority relations in the medical setting; the influence of organizational type on patient care; the effect of internal differentiation on the operation of the medical bureaucracy; the general characteristics of health and health care in America; social epidemiology of chronic diseases; community health care; national health care; problems of the new technologies; death and dying. (Offered every fall)

#### HSA 502. FINANCIAL MANAGEMENT SEMINAR FOR HEALTH CARE PROVIDERS

#### Three credits

Introduction to financial reimbursement techniques in the health care industry with discussions of the latest regulatory mechanisms to contain hospital costs, namely: price-percase reimbursement through the application of diagnosis related groups (DRG's). (Offered every spring)

#### HSA 503. HEALTH ECONOMICS

#### **Three credits**

This course utilizes microeconomic theory to analyze the three major problems in the current health care system: Costs, Access, and Health Levels. Many of the economic concepts such as demand and supply theory, market structure, opportunity cost, cost-benefit analysis, and possible solutions to these problems are offered. (Offered every fall)

#### HSA 504. STRATEGIC PLANNING FOR HEALTH CARE INSTITUTIONS

#### Three credits

This course will attempt to develop a strategic planning approach to the delivery of health services. The health care industry in the United States, consuming greater than 10% of Gross National Product. External pressures, regulations, equilibrium or over-supply of hospital beds and physicians, nursing shortages, and activist consumers have combined to force health care managers to search for new approaches being given serious consideration in strategic planning. This course will develop the planning process and utilize it to prepare for the problems confronting the health care industry of the future. (Offered every spring)



**CONCENTRATION COURSES (9 credits required)** 

## AREA I - LONG-TERM CARE **ADMINISTRATION**

## HSA 511. PERSPECTIVES ON AGING

Three credits

Human development from young adulthood through old age is analyzed. Main focus is upon social and emotional changes associated with various stages of adult life. The specific relationships between the graying of America, the subsequent development of chronic diseases and alternative health care delivery systems for the elderly will be discussed in great detail. (Offered every fall)

## HSA 512. LONG-TERM CARE ADMINISTRATION

**Three credits** This course will emphasize the usage of management principles and skills in long-term care institutions. Particular emphasis will be placed on planning and controlling along with better usage of manpower to increase productivity in these settings. (Offered every spring)

#### HSA 513. POLICIES AND PROGRAMS FOR THE ELDERLY Three credits

This course will provide the student with primary exposure to the utilization of health services which require extended length of stay (Nursing homes, Mental Health/Mental Retardation Institutions, Rehabilitation Centers). Particular emphasis will be placed on their unique aspect and the cost to environments. (Offered every summer)

## AREA II - HEALTH CARE MARKETING

## HSA 520. HEALTH CARE MARKETING

Three credits A study of the marketing process as it is applied specifically in the health care industry. Emphasis is placed on product determination, use of controllable variables, targeting, market-mix analysis, and feasibility analysis relative to "social good", third-party financing and legal and traditional restraints. (Offered even years, fall)

## HSA 521. HEALTH CARE PRODUCT DEVELOPMENT

Three credits Research methods and uses in areas of health care advertising, sales, distribution and product development. Particular emphasis will be placed on alternative health care delivery systems and diversification into other businesses. Forecasting techniques will be developed so that the health care manager will be able to predict profitable health care products. (Offered every summer)

## HSA 522. MARKETING RESEARCH AND **INFORMATION SYSTEMS**

#### Three credits

With cost containment and increasing competition continuing as vital issues, the health care system in the U.S. is in a dynamic state of change. Health Care institutions and medical providers are being forced to utilize effective marketing strategies to thrive or service in an uncertain environment. This course will provide a practical overview of health care marketing, with particular emphasis on the elements of a strategic market. (Offered every spring)

## AREA III - HEALTH CARE FINANCE

HSA 530. FINANCING HEALTH CARE

Three credits A study of the financial m

#### HSA 531, ACCOUNTING FOR HEALTH CARE INSTITUTIONS Three credits Course content will include financial statement preparation and interpretation for health

care organizations including the AICPA Guideline, budgeting, the internal reporting process, investment analysis, cost reimbursement implication, leasing, sources of finance, and various other timely topics. (Offered every spring) HSA 532. STRATEGIES FOR THE FINANCIAL MANAGEMENT

## **OF HEALTH CARE INSTITUTIONS**

**Three credits** 

Capital is the most critical strategic reason for hospitals and other health providers in the marketplace for the next decade. Hospitals who wish to diversify successfully must secure access to capital markets. This course will develop students with aggressive capital management strategies and ability to forecast capital demand. (Offered every summer)

### **ELECTIVES (9 credits required)**

## HSA 540. LABOR/MANAGEMENT RELATIONS IN HEALTH CARE Three credits

This course will attempt to explain the basis for labor management relations in health care institutions. The collective bargaining process, contract administration and labor relations for public employees will be examined in great detail. Particular attention will be paid to the right of health care employees to strike and the effect it has on the health care industry. (Offered every spring)

#### HSA 541. AMBULATORY CARE MANAGEMENT

**Three credits** 

A newly developed component of the health care sector is the efficient management of ambulatory care centers. This course will emphasize proper management of non-institutionalized components of the organization and provision of personal health services. (Offered every summer)

#### HSA 550. TOPICS IN HEALTH SERVICES ADMINISTRATION **Three credits**

Several Health Care topics courses will be offered. These courses will serve as electives and include Public Health Administration, Community Health Resources, Clinic Management, Hospital Administration and International Health. (As available)

#### HSA 595, HEALTH CARE INDEPENDENT STUDY Three credits Independent study and research for advanced students under the direction of a staff

member. (As required) Six credits

## HSA 590. HEALTH CARE INTERNSHIP (As required) **CORE REQUIREMENTS (18 credits)**

National Health Policy	HSA 500
eadership and Human Resource Management	
In Health Care Institutions	H5A 501
Medical Sociology	SOC 540
Financial Management Seminar	
for Health Care Provider	HSA 502
Health Economics	HSA 503
Strategic Planning for Health Care Institutions	HSA 504

paid to the prospective reimbursement procedure which will include government reimism of the health care industry. Particular attention will be bursement formulas, diagnosis-related groups and third-party payment. (Offered every fall)

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### CONCENTRATION AREAS

Long-Term Care Administration	
Perspective On Aging	HSA 511
Long-Term Care Administration	HSA 512
Policies and Programs for the Elderly	HSA 513
Health Care Marketing	
Health Care Marketing	HSA 520
Health Care Product Development	HSA 521
Marketing Research and Information System	HSA 522
Health Care Finance	
Financing Health Care	HSA 530
Accounting for Health Care Institutions	HSA 531
Strategies for the Financial Management	
of Health Care Institutions	HSA 532
Elective Courses	
Labor Management Relations in Health Care	HSA 540
Ambulatory Care Management	HSA 541
Topics in Health Care Services Administration	HSA 550
Health Care Independent Study	HSA 595
Health Care Internship (6 credits)	HSA 590*

\*Internship is optional; it is suggested for the individual not already employed in the health care fields.

## **School of Engineering** and Physical Sciences

Umid R. Nejib, (Ph.D.) *Dean* Brian T. Redmond, (Ph.D.) *Associate Dean* 

> Jerome Kucirka (Ph.D.) Chairman School Committee on Graduate Studies

AAAA

## Master of Science in Electrical Engineering

### ADMISSION

### a. Degree Track

For an applicant to be considered for admission to the graduate program in engineering, the file should contain the documents listed. However, if the items marked with an (\*) are not included, the file will be reviewed and a conditional admission may be granted.

## The requirements are:

- 1. Completed Graduate Division Application.
- 2. College and any other academic transcripts.
- 3. Up-to-date resume.
- 4. Two letters of recommendation.
- 5. A copy of the B.S. degree in engineering or related fields, such as Physics, Computer Science, Chemistry, Mathematics, etc.
- 6. GRE Scores\*
- 7. Foreign applicants should meet language, financial, and immigration requirements designated by the Graduate Studies Division\*.
- 8. Advanced standing or transfer credit requests if applicable. These are normally limited to 6 credits.

### b. Non-Degree Track

Applicants under this category will not be considered for a degree. However, they are allowed to enroll in graduate classes provided they satisfy the requirements listed. Such students may elect to change their status to the degree track and satisfying the requirements listed above.

The requirements are:

- 1. Completed Graduate Division Application\*.
- 2. College and any other academic Transcripts.
- 3. Up-to-date resume.
- 4. One letter of recommendation.
- 5. Copies of degrees or certificates.
- 6. Must satisfy the published prerequisites for the specific course.



## **DEGREE REQUIREMENTS**

Thirty-three (33) credit hours are required for the M.S.E.E. degree. These consist of the following:

3 credits	EGR 400
9 credits	three CORE graduate courses EE 401 and 417, 432, 447, or 481
9 credits	three INTERMEDIATE graduate courses EE 414, 418, 420, 421, 460, 482, or 484
6 credits	two ADVANCED graduate courses EE 500-level courses
6 credits	in a research-oriented THESIS

## EE 590

Students may, with approval, use the following additional courses toward the M.S.E.E. requirements to a maximum of six (6) credits:

Numerical Analysis CS 364 Microwave & Antenna Systems EE 335 EE 361 Communication Systems EE 398 **Topics in Electrical Engineering** Phy 351 Quantum Mechanics Topics in Physics Phy 398 Phy 435 Laser and Device Optics Phy 452 **Quantum Mechanics** Phy 498 **Topics in Physics** 

Advanced standing or transfer credit is normally limited to six (6) graduate credits. Petitions should be submitted to the department graduate committee of the school of engineering and physical sciences and should document minimum competency defined as relevant graduate coursework at an accredited institution with an earned grade of 3.0 or equivalent expertise.

The minimum grade point average is 3.0 with a single grade of 2.0 being allowed. Students having satisfactorily completed 12 credits are designated as candidates and are allowed formally to start their research for the thesis.

To complete the requirements for the Master's Degree, a research-oriented thesis is compulsory. The thesis is presented and defended in an open oral. Three persons, including the faculty thesis advisor as chairman, constitute a thesis committee. One member of this committee will be from outside the department.

### **COURSE DESCRIPTIONS**

All students will be advised of the course offering, sequencing, and prerequisites upon admission to the program. The faculty advisor will be in a position to recommend courses to the student taking into account the tme-table and the necessary prerequisite. Assessments and recommendations will be made by the Department Graduate Committee.

The 500-level courses are restricted to students who have achieved candidacy status. All 400-level engineering courses require a background based on 300-level courses or the equivalent of the B.S. degree.

#### EGR 400. SCIENCE/TECHNOLOGY/ETHICS

**Three credits** Ethical problems of scientists and technologists with a emphasis on modern case histories. The responsibilities and protections of professional status and the role of professional societies. Acceptable behavior: insider and outsider views.

#### EE 401. ANALYSIS

#### Three credits

The analysis of some physical and abstract problems using well developed mathematical lechniques such as contour integration, integral transforms, matrices, Bessel, Legendre, or Laguerre polynomials, FFT's, difference equations and numerical methods.

#### EE 414. CONTROL SYSTEMS

Three credits

Model of linear systems and general feedback theory. Analysis of closed loop systems using the root locus and frequency response techniques. Stability criterion, compensating techniques, senses and feedback compensation. Sampled and digital control systems.

### EE 417. NETWORK THEORY

### Three credits

Analysis and synthesis; review of basic analysis techniques. Graph theory. Topological formulas and their applications. Realizability conditions. Finding H(s) from part of H(jw). Scaling and frequency transformations. Filter design. Synthesis of LC, RC, and general RLC one-port design. Synthesis of LC, RC, two-port networks.

#### **EE 418. INTRODUCTION TO COMPUTER COMMUNICATION NETWORKS**

#### Three credits Review of basic network theory. Communication media and symbols. Planning network ayout. Computer hardware and software nodes. Network design and application.

## EE 420. SIGNALS AND SYSTEMS

Signal and system representations. Random signals and noise. Signal transformation and sampling methods. Discrete time signals and systems. Z-transform. DFT and FFT.

#### **EE 421. LINEAR SYSTEM THEORY**

#### **Three credits**

Three credits

Differential and difference equations. Vector-matrix equations and state variables. Conrollability, observability, and minimal realizations. System model conversions and linearization. Linear system response, general input/output problems, deterministic and stochastic cases, identification. System performance in stability, fidelity, sensitivity, reliability.

#### EE 432. ELECTROMAGNETIC FIELDS AND WAVES

Review of Maxwell's equations, static and time varying fields, energy and momentum balance. Wave propagation, scattering, and diffraction. Waveguides and resonant cavities. Coherence and dispersion. Dielectrics and magnetic materials. Stokes parameters and ray tracing. Mode coupling. Radiation fields. Arrays. Applications.



#### EE 442. MICROPROCESSOR SYSTEM ORGANIZATION AND DESIGN

Microprocessor components, bus structure, and interfaces. Hardware and software aspects of the design of digital and hybrid systems based on microprocessors. Case studies of specific design examples from varied applications.

## EE 447. COMPUTERS, SYSTEMS, AND DEVICES

Principles of mechanization of computations, combinational switching logic, sequential systems. Designs of a modern computer system of organization input, output, mass storage, high speed memory, logic devices, large scale integration, timing, communications, multiprocessing, real-time systems.

#### EE 460. COMMUNICATION CIRCUITS AND SYSTEMS

Design and principle of operations of electronic microwave and electro-optical communication devices and systems. Tubes, amplifiers, and oscillators. Phase-locked loops and mixers. Modulation and demodulation. Transmitters and receivers. Multiplexing methods and systems. Applications and analysis.

#### **EE 470. SOLID STATE DEVICES**

Quantum Mechanics. Block Theorem. Band Theory. Elementary excitation. Transport phenomena. Disordered systems. Defects. Alloys and Amorphous substances. Applications.

#### EE 481. ADVANCED SEMICONDUCTOR DEVICE FABRICATION LAB

Theoretical and practical aspects of techniques utilized in the fabrication of semiconductor devices. Techniques of wet chemistry, oscillation, deposition, and diffusion. Advanced concepts of contamination control, defect-free processing, and gettering. Complete characterization including junction penetration, resistivity, oxide thickness, switching speed, junction characteristic leakage and gain. Ion implantation system and method of fabrication. Extensive use of process simulation programs such as SUPREM. Each student is required to completely fabricate bipolar devices and characterize the design in terms of leakage characteristics and gain.

#### EE 482. ADVANCED COMMUNICATION AND ANTENNA LAB Three credits

Characterization and Measurement of Microwave Components, Devices, and Systems, Emphasis on Testing and Design Antenna using Swept Frequency Techniques, Utilization of Networks and Spectrul Analyzers, Antenna Radiation, Pattern Measurement Using the Antenna Range Test Facility, Microwave Communication Link Design and Testing, Cad Utilization in MW Systems, Coherent Optical Wave Generation and Modulation, Laser Communications.

#### EE 484. MATERIALS DIAGNOSTIC LABORATORY

## Three credits

Three credits

Three credits

**Three credits** 

**Three credits** 

Three credits

Qualitative and quantitative analysis of an alloy or a multi-component oxide. Identification of the components of organic compounds by IR, and UR, and NMR. Four point probe electrical conductivity and Hall measurements of semiconducting materials. Magnetic properties study of perovskite and spinel classes of ferromagnetic compounds. Electron optic image formation and application for surface analysis by scanning electron microscopy, plus internal structural image observation of thin film of different materials by transmission electron microscopy.

#### EE 498. TOPICS ELECTRICAL ENGINEERING

Selected topics in the field of electrical engineering. These may include one or more of the following: control systems; information theory; signals and noise measurements; communication systems; network design and synthesis; solid state; quantum electronics; magnetic and non-linear circuits; digital and analog systems; computer systems; medical engineering; power systems and generation. May be repeated for credit. Three hours lecture each week.

#### EE 505. REMOTE SENSING

#### **Three credits**

**Three credits** 

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Introduction to remote sensing process. Review of electromagnetic and acoustic waves. Principle and operation of various sensors: VIR, TIR, Radar and Sonar Sensor target interaction phenomenon. Signal and image processing. Pattern recognition and information on extraction. Varied applications in resource monitoring and non-destructive testing.

EE 516. OPTIMIZATION AND OPTIMAL CONTROL Three credits

The calculus of variables and the maximum principle. Performance Criteria. Applications of the methods to linear and non-linear, deterministic and stochastic, continuous-time and discrete-time control.

#### EE 540. AUTOMATION AND MANUFACTURING ENGINEERING Three credits

State-of-the-art in automation and manufacture engineering. Lecture topics include sensor, robots and their application in manufacturing, flexible manufacturing systems, human factors, manufacturing materials and processes, automation in assembly and materials handling with computer graphics, computer-aided design, computer-aided engineering, and computer-aided manufacturing, reliability and quality control, planning and control. Application Examples.

#### EE 560. COMMUNICATION THEORY

### Thee credits

**Three credits** 

Detection of signals and estimation of signal parameters. Matched filters. Continuous modulation systems, effects of noise and interference, optimum detection, comparison of systems. Discrete time and digital modulation systems, sampling theorems, quantization, optimum detection, error probability.

#### EE 562. OPTICAL COMMUNICATION

Fiber optics, light sources, lasers. Modulation and Multiplexing Coupling. Signal propagation and types of Fibers. Pulse Spreading. Optical filters. Photodectors. Fourier Optics. Communication System design and analysis.

#### EE 570. MODERN SOLID STATE DEVICES AND DESIGN Three credits

Bipolar, MOS and CMOS devices and processes. Performance limitations due to fabrication techniques. Current and future technologies for discrete devices and IC in electronics, electo-optics, and microwaves. VSLI design and implementation.

#### EE 590. THESIS

lecture each week.

## Three to six credits

**EE 598. ADVANCED TOPICS IN ELECTRICAL ENGINEERING** Three credits Selected topics in the field of electrical engineering. These may include one or more of the following: control systems; information theory; signals and noise measurements; communication systems; network design and synthesis; solid state; quantum electronics; magnetic and non-linear circuits; digital and analog systems; computer systems; medical

engineering; power systems and generation. May be repeated for credit. Three hours



## **Physics**

Dr. Frederic E. Bellas, (Ph.D.) Chairman

## **Master of Science in Physics**

## ADMISSION

For admission to graduate study in physics, the applicant should possess an undergraduate degree in physics or in any other related science, mathematics, or engineering area with a minimum of 24 hours of undergraduate credits in physics. A knowledge of calculus and differential equations is also required.

Students entering into the M.S. program in physics may be assumed to have widely differing backgrounds and interests. All degree-track students, however, must complete the CORE which consists of three courses: Physics 401 (Analysis), Physics 432 (Electromagnetism) and Physics 452 (Quantum Mechanics). Accordingly, entering degree-track students must be prepared to enroll in two of these courses. \*Students without the prerequisite background in quantum mechanics will take Physics 351 before Physics 452.

#### **DEGREE REQUIREMENTS**

Thirty-three (33) credit hours are required for the M.S. in Physics. These consist of the following:

- 3 credits in Science, Technology and Ethics (Phy 400)
- 9 credits in CORE courses (Phy 401, Phy 423, Phy 452)
- 9 credits in 400-level \*\* electives 6 credits in 500-level electives
- 6 credits in THESIS (Phy 590)

To complete the requirements for the Master's Degree in Physics, a research-oriented thesis is compulsory. The thesis is presented and defended in an ope oral. Three persons, including the faculty thesis advisor as chairman, constitute a thesis committee. One member of this committee will be from outside the department.

The minimum grade point average is 3.0 with a single grade of 2.0 being allowed. Students having satisfactorily completed 12 credits are designated as candidates and are allowed formally to start their independent research for the thesis.

\*General Prerequisites: (For Phy 401) Mathematical course work beyond differential equations. Familiarity with at least two of the following topics: linear algebra, special orthogonal functions, integral transforms, complex variables. (For Phy 432) A two-term undergraduate course in electromagnetism such as Phy 331, 332. (For Phy 452) An undergraduate senior-level quantum mechanics course such as Phy 351).

\*\*A maximum of 6 credits of the following may be substituted here. Approved 300-level physics courses, approved 300-level or 400-level non-physics courses. Approved by physics faculty is dependent on student's background and goals.

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## **COURSES OF INSTRUCTION**

#### **300-Level Approved Courses**

(Note: The following 300-level courses are those currently approved for credit in the M.S. in Physics curriculum. For a complete list of 300-level physics courses refer to the current Wilkes College undergraduate BULLETIN).

#### PHYSICS 301. MATHEMATICS METHODS I

Three credits Study of different areas of mathematics ad their application in physics, engineering, and the sciences. Topics include ordinary and partial differential equations, fourier methods, complex variables, matrix methods, Green's functions, tensor analysis, group theoretical

#### PHYSICS 302. MATHEMATICAL METHODS II Continuation of Physics 301.

methods, and others

## PHYSICS 310. ANALYTICAL MECHANICS

An intermediate level course designed to develop an understanding of the principles of mechanics based on the Newtonian as well as the Lagrangian and Hamilton formulations. The application of matrices, tensors, and differential equations and advanced techniques to the solution of mechanics problems. Topics include harmonic oscillations, central force problems, rigid body motions, inertia and stress tensors, elastic waves, eigenvalue problems, normal coordinates and finite symmetry groups. Recitation-lecture three hours a week

#### PHYSICS 323. X-RAY DIFFRACTION/LAB

Study of structure and composition of solids using x-rays. Effects of annealing, sub-structures, cold work, preferred orientation, and ordering. Principles of design and applications of x-ray diffraction techniques. Three hours lecture and one three-hour laboratory a week. Fee: \$35. (Same as MaE 311)

#### PHYSICS 351. QUANTUM MECHANICS

#### An introduction to quantum mechanics. Schrodinger's equation and its application to the potential-well, the harmonic oscillator, and the hydrogen atom. Angular momentum. Perurbation theory. Identical particles; Pauli's exclusion principle. The Dirac relativistic wave equation and the origin of electron spin.

#### PHYSICS 361/363. ATOMIC PHYSICS/LAB

#### Four credits

**Three credits** 

**Three credits** 

**Three credits** 

Four credits

Planck's theory of cavity radiation, photons and the particle aspect of radiation, the wavelike properties of particles. Schrodinger's theory of quantum mechanics, one-electron atom, special functions, use of recursion relations to evaluate selection rules, x-ray and optical excitations of multi-electron atoms, application of group theory to the normal modes of molecules, quantum statistics with simple applications to solids. Fee: \$35.

#### PHYSICS 370. INTRODUCTION TO SOLID STATE PHYSICS **Three credits**

Introduction to bonding and crystal structure, symmetry, considerations, reciprocal lattice considerations, lattice dynamics, electronic structure of simple metals, insulators, and semiconductors, dielectric, ferroelectric, and magnetic properties of materials.



#### PHYSICS 380/382. NUCLEAR PHYSICS/LAB

Some properties of nuclei: size, density, shape; the nuclear force; models of nuclear structure, unstable nuclei; radioactive decay, alpha decay, Gamow's theory; Beta decay. Fermi's theory; Gamma decay and the Mossbauer Effect; nuclear reactions, the excited states of nuclei; fisson and reactors; fusion, the origin of the chemical elements, elementary particles; unification. Fee: \$35.

#### PHYSICS 398, TOPICS IN PHYSICS

Selected topics in physics. May be repeated for credit.

#### CS 364. NUMERICAL ANALYSIS

Numerical methods of differentiation, integration, solution of equations and of differential equations with emphasis on problems that lend themselves to solution using computers. (Same as Mth 364)

#### **EE 342. MICROCOMPUTER OPERATION AND DESIGN**

Microprocessor architecture, microcomputer design, and peripheral interfacing. Microprogramming, software systems, and representative applications. Associated laboratory experiments consider topics as bus structure, programming, data conversion, interfacing, data acquisition, and computer control. Two hours lecture and one two-hour laboratory a week. Fee: \$35. (Same as CS 329)

## EE 381. ADVANCED MICROELECTRONICS LAB

The theoretical and practical aspects of techniques utilized in the fabrication of semiconductor devices. Crystal growth, solid solubility, alloying and diffusion, oxide masking and epitaxy. Thin and thick film techniques. Device fabrication procedures in microelectronics, and the electrical performance of devices based on these techniques. Ion implantation systems and method of fabrication. One hour lecture and one six-hour laboratory a week. Fee: \$35.

#### **EE 382. ADVANCED COMMUNICATION LAB**

Characterization and measurement of microwave components, devices, and systems. Emphasis on testing and design criteria using swept frequency and dynamic techniques. Network and spectrum analyzers. Antenna radiation pattern measurements using the antenna range test facility. Microwave communication link design and testing. CAD utilization in MW systems. Coherent optical wave generation and modulation. Laser communication. One hour lecture and one six-hour laboratory a week. Fee: \$35

#### EE 398. TOPICS IN ELECTRICAL ENGINEERING

Selected topics in electrical engineering. May be repeated for credit.

## MaE 398. TOPICS IN MATERIALS ENGINEERING

Selected topics in materials engineering. May be repeated for credit.

### **400-Level Courses**

### PHYSICS 400. SCIENCE, TECHNOLOGY AND ETHICS

Ethical problems of scientists and technologists with an emphasis on modern case histories. The responsibilities and protections of professional status and the role of professional societies. Acceptable behavior: insider and outsider views.

#### PHYSICS 401. ANALYSIS

The analysis of some physical and abstract problems using well-developed mathematical techniques such as contour integration, integral transforms, matrices, Bessel, Legendre, or Laguerre polynomials, FFT's difference equations and numerical methods. CORE COURSE.

#### PHYSICS 411. ANALYTICAL MECHANICS

Four credits

**Three credits** 

**Three credits** 

**Three credits** 

Four credits

Four credits

Three credits

**Three credits** 

Three credits

Three credits

Variational principles and Hamiltonian theory. Cannonical transformations and Gauge invariance. Descriptions of rigid body motions or other applications.

#### PHYSICS 425. ENERGY SYSTEMS

The analysis of the conversion and transfer of energy in various systems of technical or scientific interest. High and low power density systems. Up and down scaling. Heat transter and storage. Entropy considerations.

#### PHYSICS 427. SOLID STATE DEVICES

Transistor processes and types. Properties of semiconductors and junctions. High current effects and low frequency feedback effects. Low and high frequency hybrid parame-

#### PHYSICS 432. ELECTROMAGNETIC FIELDS AND WAVES Three credits

Maxwell's equations. Energy and momentum in the electromagnetic field. Plane, cylindrical, and spherical waves. Boundary conditions. Cylindrical waveguides, cavity resonators and scattering by a sphere and other obstacles. CORE COURSE.

#### PHYSICS 435. LASER AND DEVICE OPTICS

Gaussian beam optics. Non-linear optical effects; frequency doubling; lasing. Wave guiding in the double heterostructure diode laser. IR and visible diode lasers. Spectral control. Comparison of gain-guided and real refractive index lasers. Construction details and the dynamics response of pulsed lasers.

#### PHYSICS 452. QUANTUM MECHANICS

Review of the important concepts and tools of quantum mechanics. Dirac notation, linear operators and unitarity. The Postulates. Bound and unbound states, unstable states. Gauge invariance. The harmonic oscillator and phonons. The central potential and hydrogen-like systems. Applications. CORE COURSE.

#### PHYSICS 480. NUCLEAR AND HIGH ENERGY PHYSICS **Three credits**

Nuclear size and shapes. Radioactive decay. Alpha and Gamma emission. The Fermi theory of Beta decay. Nuclear reactions and subnuclear particles, Classification, Two nucleon interactions. Collective interactions.

#### PHYSICS 491. PRACTICUM Three to six credits

PHYSICS 498. TOPICS IN PHYSICS One to three credits

Topics dependent on interest and need. May be repeated for credit.

#### **500-Level Courses**

#### PHYSICS 530. ELECTRODYNAMICS AND RELATIVITY

The Lorentz transformation. The electromagnetic field tensor and covariance. Radiation and plasma dynamics; interactions of electromagnetic waves with matter.

#### PHYSICS 535, LIGHT SCATTERING

Classical and quantum descriptions of light scattering including Rayleigh scattering, Brilbuin scattering and Raman scattering. Scattering in crystals and glasses. Stimulated and spontaneous emission. Coherence and resonance effects.

#### PHYSICS 540. STATISTICAL MECHANICS AND TRANSPORT THEORY

**Three credits** 

**Three credits** 

**Three credits** 

Review of thermodynamic concepts; the partition function and phase space. The Einstein model and the Debye model for a crystalline solid. Bose-Einstein and Fermi-Dirac statis-Random processes and irreversible thermodynamics. Noise and fluctuations. The



Three credits

Three credits

**Three credits** 



PHYSICS 550. ADVANCED QUANTUM MECHANICS	Three credits
Scattering and scattering cross sections, partial wave analysis; a mentum and Clebsch-Gordon coefficients. Stationary perturbated dent perturbation theory; resonant perturbations and the decastates.	applications. Angular mo- ation theory; time-depen- ay or resonantly coupled
PHYSICS 571. THEORY OF SOLIDS	Three credits
Energy hand calculations Phonons and other elementary exc	itations Superconductiv

ity, cooperative phenomena, order-disorder transitions.

PHYSICS 580. NUCLEAR PROCESSES	Three credits
Nuclear systems for power generation and other application son of fossil fuel, and several fission schemes. Fusion scheme	s. Nuclear waste. Comparies.
PHYSICS 590. THESIS	Three to six credits
DUVOIOS FAS ADVANCED TODIOS IN DUVOIOS	These second

 PHYSICS 598. ADVANCED TOPICS IN PHYSICS
 Three credits

 Topics dependent on interest and need. May be repeated for credit.
 Three credits

# Master of Science in Education with a concentration in Physics

## ADMISSION

For admission to graduate study in physics education, the applicant should possess an undergraduate degree in physics or in any other related science, mathematics, or engineering area.

## DEGREE REQUIREMENTS

General requirements for the Master of Science in Education with a major in Physics are listed under Education on page 19. Specific physics requirements consist of eighteen graduate credits chosen in consultation with the student's advisor in the Physics Department. As a general rule, any course numbered at a 300-level or above may be taken for graduate credit. (See the current undergraduate BULLETIN for a complete list of 300-level physics courses. 400-level and 500-level physics courses are listed at the end of the next section.)

## **Earth and Environmental Sciences**

## Brian T. Redmond, (Ph.D.) Chairman

These courses may be taken by special students or may be applied towards graduate degrees offered by other departments. Students planning to apply these credits towards degree programs should secure the approval of their academic advisor prior to inclusion in their course of study.

COURSES OF INSTRUCTION	
EARTH & ENVIRONMENTAL SCIENCES 491. PRACTICUM	Three to six credits

#### EARTH & ENVIRONMENTAL SCIENCES 498. ADVANCED TOPICS I & II

#### One to three credits each

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Selected topics covering a variety of atmospheric, hydrospheric, and lithospheric processes and environmental management issues. May be repeated for credit. Prerequisite: Senior or graduate standing.

## Administration of the Graduate Program

Graduate programs at Wilkes College are the administrative responsibility of the Dean of Graduate Studies and Continuing Education. A Faculty Committee on Graduate Studies acts in an advisory capacity to the Dean, and is listed below.

## FACULTY COMMITTEE ON GRADUATE STUDIES

Barbara Bellucci	Director of Microcomputer Education Regional Computer Resource Center Assistant Professor of Education Ed.D. (Temple)
Suzanne M. Druffner	Associate Professor of Nursing M.S. (Pennsylvania)
Mahmoud H. Fahmy	Dean of Graduate Studies and Continuing Education Professor of Education Ph.D. (Syracuse)
Michael S. Garr	Assistant Professor of Sociology/Anthropology Ph.D. (Indiana)
Thomas N. Kaska	Professor of English Ph.D. (Duquesne)
Richard G. Raspen	Assistant Professor of Business Administration M.B.A. (Wilkes), M.Ed. (Bloomsburg)
Richard E. Sours	Professor of Mathematics/Computer Science Ph.D. (Virginia)
Robert D. Stetten	Associate Professor of Psychology Ph.D. (Lehigh)
Robert J. Heaman	Ex Officio Acting Vice President for Academic Affairs



Please send this form to:

----

Dr. Mahmoud H. Fahmy, Dean Division of Graduate Studies and Continuing Education

Date

Wilkes College does not discriminate on the basis of race, color, national or ethnic origin, or handicap in the administration of its educational programs and activities in accordance with applicable federal statutes and regulations. Inquiries concerning application to this policy should be directed to the Affirmative Action Officer.

Additional space for recommendation

## **RECOMMENDATION FORM** Wilkes College

Division of Graduate Studies and Continuing Education

Name of applicant\_

Graduate Program desired\_

# Family Education Rights and Privacy Act (FERPA) (Buckley Amendment)

Under the provision of this Act you have the right, if you enroll in Wilkes College, to review your education record. The Act further provides that you may waive your right to see recommendations for admission. Please indicate below, by circling the appropriate phrase and signing your name, whether or not you wish to waive that right.

any right that I have to this recommendation form. do not waive

I waive

Applicant's signature

To person completing this recommendation:

Your assessment of the candidate's potential for graduate work is desired. Use reverse side if additional space is required. ith others you have known during your professional career.

iour access the scale below	v in comparison with	n others you na	VC INIONI CAL		Rottom Third	Unable
Please evaluate the applicant of the sould be a	Top 10% Outstanding	Top 20% Superior	Top Third Above Average	Middle Third Average	Below Average	to Judge
				<u></u>	<u> </u>	
Intelligence						
Originality & Creativity						
Motivation & Perseverance toward goals						

Overall potential for graduate study	
Name of Respondent (type or print)	
Position or Title	
Telephone	
Address	
	Data
gnature of Respondent	Date

Date admission is desired:	Occupation:	
Employment record:		
Company or school system	Duties	Dates
Company or school system	Duties	Dates
Company or school system	Duties	Dates

Letters of recommendation will be furnished from the following. Two are required, one of which must be from an Academic Dean or Faculty member at the academic institution attended.

Dates

Date .

.....

Name	Title	Address
Name	Title	Address

APPLICATIONS WILL NOT BE PROCESSED UNTIL ALL SUPPORTING PAPERS ARE RECEIVED. THESE INCLUDE:

1. Official transcripts of all college work, graduate and undergraduate.

2. Two letters of recommendation.

3. TOEFL Scores for all foreign students whose native language is not English.

4. \$25.00 Application fee (non-refundable).

Do you desire on-campus accommodations? 
See Yes No

Are you interested in applying for a position as a Resident Assistant? See No

Are you requesting financial assistance? 
Yes No

Applicant's signature\_

### DO NOT WRITE BELOW THIS LINE

•••••••••••••••••••••••••••••••••••••••	
Application fee received	Date
Transcripts complete	Date
Recommendation received	Date
Recommendation received	Date
TOEFL received (if applicable)	Date
Affidavit of Support	Date
Application forwarded to department	Date
Admission type	Date
V.A. identification (if applicable)	

An equal opportunity/affirmative action institution

0

## **RECOMMENDATION FORM** Wilkes College

**Division of Graduate Studies** and Continuing Education

Name of applicant\_

Graduate Program desired

# Family Education Rights and Privacy Act (FERPA) (Buckley Amendment)

Top 10%     Top 20%     Top Third     Middle Third     Bottom Third       Outstanding     Superior     Average     Average     Below       Outstanding     Superior     Above     Average     Below       Average     Below     Average     Below	Please evaluate th	of the candidate's potential fine applicant on the scale bel	or graduate work is de ow in comparison with <sup>Top 10%</sup> Outstanding Outstanding	esired. Use rev h others you ha Top 20% Superior Superior	erse side if add ve known durir Top Third Above Average Above Average	litional space is r ng your professio Middle Third Average Average	equired. Dnal career. Bottom Third Below Average Below	ں الے
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Division of Graduate Studies and Continuing Education Max Roth Center 215 S. Franklin Street Wilkes-Barre, Pennsylvania 18766

For further information, write or call:

Dr. Mahmoud H. Fahmy, Dean Dr. Mahmoud H. Fahmy, Dean Division of Graduate Studies and Continuing Education Wilkes-Barre, PA 18766 Wilkes-Barre, PA 18766 Phone: (717) 824-4651, extension 226 Phone: (717) 824-4651, extension 226 Phone: (717) 824-4651, extension 226 From elsewhere in Pennsylvania (800) 572-4444 From Middle-Atlantic and New England Regions (800) 537-4444

## WILKES COLLEGE GRADUATE DIVISION



## APPLICATION FOR ADMISSION

Please print or type the information requested below and return it with a non-refundable processing fee of \$25.00. Please make check payable to Wilkes College.

Name						
Last		First		Middle		
Home address	(Buedau K					
No.	Street	City	State	Zip		
Mailing address (if different)						
No.	Street	City	State	Zip		
lome Telephone	B	usiness Telephone				
SexBirth Date	Social Security No					
Ditizen of (indicate country)	DO YOS MULE D	Are	you a veteran?	VA benefits?		
Name of high school		_Date of graduation				
oneges of universities attended:						
lame	Dates	Degree				
Vame	Dates	Degree				
Name	Dates	Degree	200			
Major area of undergraduate study						
Check status desired: 🗆 Degree Program		Special n	on-degree			
Check enrollment desired:  Part-time		Full-time				

300

Check program desired: Master of Business Administration Concentration: Master of Health Administration Concentration:\_ Master of Science in Electrical Engineering Master of Science in Mathematics □ Master of Science in Physics □ Master of Science in Education Concentration in: English □ Biology □ Field Education □ Chemistry □ Education (general) □ History Educational Computing Mathematics Elementary Education Physics Education Students: 
Certified to teach

Not certified



Division of Graduate Studies and Continuing Education Max Roth Center 215 S. Franklin Street Wilkes-Barre, Pennsylvania 18766

For further information, write or call:

From elsewhere in Pennsylvania (800) 572-4444 From Middle-Atlantic and New England Regions (800) 537-4444 Division of Graduate Studies and Continuing Education Wilkes College Wilkes-Barre, PA 18766 Phone: (717) 824-4651, extension 226 Toll-free from Scranton, PA 342-5617 Dr. Mahmoud H. Fahmy, Dean

9

# WILKES COLLEGE GRADUATE DIVISION



## APPLICATION FOR ADMISSION

Please print or type the information requested below and return it with a non-refundable processing fee of \$25.00. Please make check payable to Wilkes College.

Name						
Last		First				
Home address	Burning Math	1.2.2	1			
No.	Street	City	State	Zip		
Aailing address (if different)						
No.	Street	City	State	Zip		
lome Telephone	Bu	siness Telephone				
SexBirth Date	Social Security No					
2itizen of (indicate :ountry)	DO HOL MAILE OF	Are y	/ou a veteran?	VA benefits?		
lame of high school	[	Date of graduation				
lame	Dates	Degree		Summer and		
Jame	Dates	Degree				
Vame	Dates	Degree				
Major area of undergraduate study						
Check status desired: 🗆 Degree Program		□ Special no	on-degree			
Check enrollment desired: 🗆 Part-time		🗆 Full-time				

So

Check program desired: Master of Business Administration Concentration:\_ Master of Health Administration Concentration:\_\_ Master of Science in Electrical Engineering Master of Science in Mathematics □ Master of Science in Physics □ Master of Science in Education Concentration in: □ Biology □ Chemistry □ Education (general) Educational Computing Elementary Education Education Students: 
Certified to teach

 English □ Field Education □ History Mathematics □ Physics

Not certified


## Wilkes-Barre, PA 18766 (717) 824-4651



#### Spring Graduate Spring Bandate Spring Spring





# Spring Graduate Studies WILKES COLLEGE SPRING SEMESTER, 1988

(717) 824-465-



# Graduate Studies SPRING 1988 (TIMES IN LIGHT FACE REPRESENT A.M. and TIMES IN BOLD FACE P.M.)

## COLLEGE OF ARTS AND SCIENCES

Course	Description	Room	Day & Hour	Instructor	Credit
BIO 304A	Life of the Vertebrates (Prereq: BIO 121-122 or permiss	SLC 359	or)	Houseknecht	0
BIO 304A1 BIO 308A	Lab Fee: \$35.00 Genetics	SLC 378 SLC 359	MW 10-10:50	Turoczi	3
DIO 00044	(Prereq: BIO 121-122 or permis	SION OF INSTRUCT	T 2-4-45	Turoczi	0
BIO 308A1 BIO 319A	Plant Diversity	SLC 370 SLC 359	TTh 1-1:50	Klemow	3
BIO 319A1	(Prereq: BIO 121-122, 223-224) Lab Fee: \$35.00	SLC 349	M 2-4:45	Klemow	0
DID 997A	Seminar Topics: Histology	SLC 359 SLC 359	Th <b>3-4:50</b> TTh 10-10:50	Houseknecht Long	1 3
BIO 398A1	(Prereq: BIO 121-122 or permis Lab Fee: \$35.00	SLC 305	or) Th <b>2-4:45</b>	Long	0
CHEMIST	YF				
CHEM 325	Advanced Inorganic Che (Prereq: CHEM 222 and 252)	m. IBA	Th 8-9:30	Chebolu	3
CHEM 361	Biochemistry I (Prereq: CHEM 232)	TBA	M <b>2-4</b> F 9-9:50	Stine	3
FDUCATIO	N				
ED 404	Intern Teaching	TBA	M thru F 8-4	Johnson	3
ED 510	Psychological	KBY 302	M 4-7	Ginsburgh	3
	Foundations of Education	رون ممم ال	MED	Williamo	2
ED 314	Foundations of Education	עעע 202 ו	vv 0-9	vvillaris	3
ED 531	Children's Literature	SLC 147	T 4:30-6:30	Meyers	3
ED 532A	Problems in	DDD 101	M 7-10	Polacheck	3
	Elementary Education - N	Athematics	TDA	TDA	2
ED 550	PRIDF	TBA	TRA	TRA	3
ED 552	Teaching Through	TBA	TBA	TBA	3
	Learning Channels				
ED 553	Patterns for I.D.E.A.S. (Prev. Teaching Strategie	s)	TBA	TBA	3
ED 587	Microcomputer Data Structures	SLC 403	M 6-9	Pryor	3
EDUIDATIC		DEDUU			
EDUCATIC ED 533	PIES	SLC 150	T 6.0	Placek	3
ED 580	Computer Literacy	SLC 130	W 6-9	Prvor	3
10 000	Elementary	010 111			
ED 580	Computer Literacy Secondary	SLC 127	M 6-9	Koch	3
ENG 301E	Literary Criticism	KBY 302	Th 6-9	Kaska	3
ENG 312E	Chaucer	SLC 347	T 6-9	Fiester	3
ENG 330A	17th Century	KBY 309	TTh 2:30-3:45	Kaska	3
5NO 0004	Prose & Poetry	KDV 000		Tana	2
ENG 366A	Later English Novel	KBY 309	MWF 2-2:50	Cutin	3
ENG JOOA	WOUEIII AMERican Foel	SLC 207	1111 9-9.50	Guun	0
ENG 398A	Cont. American Fiction	SLC 316	TTh <b>4-5:15</b>	P. Heaman	3
ENG 480E	Studies in American Lit.	SLC 316	TTh <b>4-5:15</b>	P. Heaman	3
ENG 497E	Seminar: T. S. Eliot	KBY 302	W 6-9	Gutin	3
HISTORY/		NCE			
HST 332A	National Period	SLC 160	TTh 9:30-11	Mevers	3
HST 333E	The Age of	Capin 15	M 6:30-9:30	Cox	3
	Big Business			<b></b>	
HST 352A	Renaissance and Reformation	SLC 160	MWF 11-11:50	Sterling	3
HST 362A	History of the Far East	SLC 204	MWF 9-9:50	Shao	3
HST 398A	Topics: Modern Middle Fast	SLC 204	TTh 1-2:30	Tutwiler	3
PS 307A	American Presidency	SLC 204	MWF 11-11:50	Behuniak-Lon	g 3
PS 332A	Constitutional Law	SLC 204	MWF 2-2:50	Behuniak-Lon	g 3
PS 335A	Amer. Political Thought	SLC 204	TTh 9:30-10:45	Tuhy	3
PS 398A	Topics: Modern Middle Fast	SLC 204	TTh <b>1-2:30</b>	Tutwiler	3
PS 398E	Topics: Public Policy	SLC 204	⊺ 6:30-9:30	Tuhy	3

## SCHOOL OF BUSINESS AND ECONOMICS

BUSINESS	ADMINISTRATIC	N			Credit
Course	Description	Room	Day & Hour	Croop	3
ACCT 501E	Financial & Managerial (Prereq: ACCT 101, ACCT 102, B	DDD 201 BA 225)	IVI <b>0-9</b>		2
ACCT 562E	Financial & Tax	DDD 202	T 6-9	C. Chisarick	3
RA 505E	Independent Research	TBA	TBA	TBA	3
BA 507E	Business and Society	SLC 316	T 6-9	Raspen	3
BA 507E1	Business and Society	SLC 359	Th 6-9	Raspen	3
BA 512E	Price Policy and Procedure	SLC 342	T 6-9	Taylor	3
BA 514E	Market Research and Experimentation	SLC 318	W 6-9	Batory	3
BA 522E	Quantitative Aspects of Management	SLC 204	Th <b>6-9</b>	Penugonda	3
BA 550E	Topics: SBA	TBA	TBA	Chmiola	3
BA 550E1	Topics: Options and Futures	SLC 204	W 6-9	Engel	3
BA 552E	Financial Managament	SLC 334	M 6-9	Engel	3
BA 558E	Risk Management	SLC 311	Th <b>6-9</b>	Farrar	3
BA 595E	Independent Research	TBA	TBA	TBA	3
	in the second second				
ECONOM	Managerial Statistics	SI C 209	W 6-9	Cordora	3
EC 505E	Managerial Statistics	SLC 205	M 6-9	H. Williams	3
EC 510E	Managenal Economics	TRA	TBA	TBA	3
EC 595E	Independent nesearch	I DA	webs show as		
HEALTH	SERVICE ADMIN	STRATI	ON (MHA)		
HSA 502E	Financial Management (Sem. for Health-Care F	SLC 342 Providers)	⊺ <b>6-9</b>	Menichello	3
HSA 504E	Strategic Planning for Health-Care Instituti	SLC 204 ons	M 6-9	Healey	3
HSA 512E	Long-Term Care Administration	SLC 311	W <b>6-9</b>	Livingstone	3
HSA 520	Health Care Marketing Friday Ev Saturday	Darte 101 vening <b>6-9</b> 9- <b>4</b>	Weekender Jan. 22, 23 Feb. 12, 13 Mar. 4, 5 Apr. 1, 2 Apr. 29, 30	Healey	3
HSA 522E	Market Research	SLC 316	W 6-9	Atzrott	3
HSA 550E	Epidemiology in Health Care	SLC 316	Th <b>6-9</b>	Houseknech	nt 3
HSA 550E2	Current Perspectives: Drug and Alcohol Abus	TBA	TBA	Ambrosino	3
HSA 550E3	Organizational Behavio Communication & Inter Organizations	r SLC 209 mational Ski	T <b>6-9</b> ills in Health Care	Basu	3
HSA 550E4	Medical Management	SLC 342 Managemen	Th <b>6-9</b> t Perspectives	О'Нор	3
HSA 590	Health Care Internship	TBA	ТВА	Basu	3

## SCHOOL OF ENGINEERING

ENGINEE	RING				
Course EE 398G-A	Description Topics: Robotics	Room SLC 223	<b>Day &amp; Hour</b> TTh <b>2:30-4</b>	Instructor Misra	Credit 3
EE 398G-B	Topics: Digital Filter Design	SLC 224	MWF 1-1:50	Srinivasan	3
EE 414G-E	Control Systems	SLC 318	M 6:30-9:15	Mohseni	3
EE 432G-E	Electromagnetic Fields & Waves	SLC 223	⊺ <b>6:30-9:15</b>	Hostler	3
EE 482G-E	Adv. Communication & M. W. Lab	SLC 224 SLC 224	M 5:15-6:15 M 6:16-11	Yeroushalmi	3
EE 498G-B	Topics: Digital Filter Design	SLC 223	MWF 1-1:50	Srinivasan	3
EE 498G-E	Topics: IC Circuit Design	SLC 223	W 6:30-9:15	Choudhry	3
EGR 498G-E1	Topics: Expert Systems CIM	SLC 424	MW 6:30-7:45	Lee	3
EE 562G-E	<b>Optical Communication</b>	SLC 223	8-9:15	Armand	3
EE 590G-E	Thesis (01-03)	TBA	TBA	TBA	3

#### **MATHEMATICS/COMPUTER SCIENCE**

MA 342A	Intro. to Topology	SLC 405	MW 4-5:15	Hong	3
MA 354A	Statistical Modeling	SLC 424	TTh 1-2:15	Merrill	3
MATH 362A	Intro. to Applied Math II	SLC 409	TTh 9:30-11	Sours	3
CS 328A	Analysis of	SLC 409	MWF 12-12:50	Andeson	3
	Algorithms				

PHYSICS					
PHY 302G-E	Math in Physics and Science II	SLC 166	W 6:30-9:15	Bellas	3
PHY 310G-A	Mechanics	SLC 147	TTh 9:30-10:45	Loncoski	3
PHY 361G-A	Atomic Physics	SLC 42	TThF 1-1:50	Maxwell	4
PHY 363G-A	Atomic Physics Lab	SLC 42	W 2:30-5:30	Maxwell	0
PHY 432G-E	Electromagnetic Fields & Waves	SLC 223	TTh <b>6-7:15</b>	Hostler	3

Wilkes College Masters degree in Health Administration is accredited and formally approved by the Division of Academic Program Approval, Department of Education of the Commonwealth of Pennsylvania. The College is an Associate Member of University Programs in Health Administration (AUPHA).

Wilkes College is a member of the Council of Graduate Schools in the United States and Pennsylvania Association of Graduate Schools.

The Wilkes College Master of Business Administration is currently offered in Lehigh Valley and Allentown area through Allentown College Sancti, Francisci Sales II.

The Division of Graduate Studies and Continuing Education is offering a variety of non-credit courses, workshops and seminars in professional development, cultural en-richment, and personal improvement. (There is a special brochure for the Continuing Education offerings.) Wilkes College Continuing Education is a member of the National and the Council on the Contin ing Edu n I Init

## COLLEGE OF ARTS AND SCIENCES

BIOLOGY					
Course BIO 304A	<b>Description</b> Life of the Vertebrates (Prereq: BIO 121-122 or permissi	Room SLC 359 ion of instructo	<b>Day &amp; Hour</b> TTh 9-9:50 or)	Instructor Houseknecht	Credit 3
BIO 304A1 BIO 308A	Lab Fee: \$35.00 Genetics	SLC 378 SLC 359	W <b>2-4:45</b> MW 10-10:50	Houseknecht Turoczi	0 3
PIO 209A1	(Prereq: BIO 121-122 or permiss	sion of instruct	or) T <b>2-4·45</b>	Turoczi	0
BIO 319A	Plant Diversity (Prereq: BIO 121-122, 223-224	SLC 359 or permission	TTh <b>1-1:50</b> of instructor)	Klemow	3
BIO 319A1	Lab Fee: \$35.00	SLC 349	M 2-4:45	Klemow	0
BIO 397A BIO 398A	Seminar Topics: Histology (Prereq: BIO 121-122 or permiss	SLC 359 SLC 359 sion of instruct	Th <b>3-4:50</b> TTh 10-10:50 or)	Houseknecht Long	3
BIO 398A1	Lab Fee: \$35.00	SLC 305	Th <b>2-4:45</b>	Long	0
CHEMIST	RY				
CHEM 325	Advanced Inorganic Cher (Prereq: CHEM 222 and 252)	n. TBA	T <b>2:30-4</b> Th 8-9:30	Chebolu	3
CHEM 361	Biochemistry I (Prereq: CHEM 232)	TBA	M <b>2-4</b> F 9-9:50	Stine	3
EDUQATIO					
EDUCATIO	Intern Teaching	TBA	M thru E 8.4	lohnson	3
ED 404 ED 510	Psychological	KBY 302	M <b>4-7</b>	Ginsburgh	3
20 010	Foundations of Education		`	amobargh	0
ED 514	Historical Foundations of Education	DDD 202	W 6-9	Williams	3
ED 531	Children's Literature	SLC 147	T 4:30-6:30	Meyers	3
ED 532A	Problems in	DDD 101	M 7-10	Polacheck	3
ED 550	Project TEACH	TRA	TBA	TRA	3
ED 550	PRIDE	TBA	TBA	TBA	3
ED 552	Teaching Through	TBA	ТВА	TBA	3
	Learning Channels				
ED 553	Patterns for I.D.E.A.S. (Prev. Teaching Strategies	TBA	TBA	TBA	3
ED 587	Microcomputer Data Structures	SLC 403	M 6-9	Pryor	3
EDUCATIO	N COURSES BY	PERMIS	SION		
ED 533	PIES	SLC 150	T 6-9	Placek	3
ED 580	Computer Literacy Elementary	SLC 127	W 6-9	Pryor	3
ED 580	Computer Literacy Secondary	SLC 127	M 6-9	Koch	3
ENGLISH					
ENG 301E	Literary Criticism	KBY 302	Th 6-9	Kaska	3
ENG 312E	Chaucer	SLC 347	T 6-9	Fiester	3
ENG 330A	17th Century Prose & Poetry	KBY 309	TTh 2:30-3:45	Kaska	3
ENG 366A	Later English Novel	KBY 309	MWF 2-2:50	Terry	3
ENG 386A	Modern American Poet	SLC 311 SLC 207	TThF 9-9:50	Gutin	3
ENG 398A	Cont. American Fiction	SLC 316	TTh 4-5:15	P. Heaman	3
ENG 480E	Studies in American Lit.	SLC 316	W 6-9	P. Heaman Gutin	3
ENG 497 E	Seminar. 1. S. Lifet	NDT JUZ	W 0-5	Cutin	0
HISTORY/	POLITICAL SCIE	NCE	TTh 0.20 11	Movere	2
HST 332A	The Age of	Capin 15	M 6:30-9:30	Cox	3 3
H01 000E	Big Business	oupin 10	W 0.00-5.00	JUN	0
HST 352A	Renaissance and Reformation	SLC 160	MWF 11-11:50	Sterling	3
HST 362A	History of the Far East	SLC 204	MWF 9-9:50	Shao	3
HST 398A	Middle East	SLC 204	1111 1-2:30	lutwilei	3
PS 307A	American Presidency	SLC 204	MWF 11-11:50	Behuniak-Long	3

DAGOTE	Business and Cociety	CI C 250	Th 6.0	Rasnen	3
BA 50/E1	Business and Society	SLC 309	T60	Taylor	3
BA 512E	Price Policy and Procedure	5LU 342	10-5	layioi	0
BA 514E	Market Research and Experimentation	SLC 318	W 6-9	Batory	3
BA 522E	Quantitative Aspects of Management	SLC 204	Th <b>6-9</b>	Penugonda	3
BA 550E	Topics: SBA	TBA	TBA	Chmiola	3
BA 550E1	Topics: Options and Futures	SLC 204	W <b>6-9</b>	Engel	3
BA 552E	Financial Managament	SLC 334	M 6-9	Engel	3
BA 558E	Risk Management	SLC 311	Th <b>6-9</b>	Farrar	3
BA 595E	Independent Research	TBA	TBA	TBA	3
FCONOM					
EC 505E	Managerial Statistics	SLC 209	W 6-9	Cordora	3
EC 510E	Managerial Economics	SLC 316	M 6-9	H. Williams	3
EC 595E	Independent Research	TBA	ТВА	TBA	3
HEALTH	SERVICE ADMINI	STRATI	ON (MHA)		
HSA 502E	Financial Management (Sem. for Health-Care P	SLC 342 roviders)	T 6-9	Menichello	3
HSA 504E	Strategic Planning for Health-Care Institution	SLC 204	M 6-9	Healey	3
HSA 512E	Long-Term Care Administration	SLC 311	W 6-9	Livingstone	3
HSA 520	Health Care Marketing Friday Ev Saturday	Darte 101 ening <b>6-9</b> 9- <b>4</b>	Weekender Jan. 22, 23 Feb. 12, 13 Mar. 4, 5 Apr. 1, 2 Apr. 29, 30	Healey	3
HSA 522E	Market Research	SLC 316	W 6-9	Atzrott	3
HSA 550E	Epidemiology in Health Care	SLC 316	Th <b>6-9</b>	Houseknecht	3
HSA 550E2	Current Perspectives: Drug and Alcohol Abus	TBA	ТВА	Ambrosino	3
HSA 550E3	Organizational Behavior Communication & Inter Organizations	SLC 209 national Ski	T <b>6-9</b> Ils in Health Care	Basu	3
HSA 550E4	Medical Management Information Systems: N	SLC 342 lanagement	Th <b>6-9</b> Perspectives	О'Нор	3
HSA 590	Health Care Internship	TBA	TBA	Basu	3
SCHO	OL OF ENGIN	EERIN	IG		
AND F	PHYSICAL SC	IENCE	S		

ENGINEEF	RING				
Course EE 398G-A	Description Topics: Robotics	Room SLC 223	Day & Hour TTh <b>2:30-4</b>	Instructor Misra	Credit 3
EE 398G-B	Topics: Digital Filter	SLC 224	MWF 1-1:50	Srinivasan	3
	Design				
EE 414G-E	Control Systems	SLC 318	M 6:30-9:15	Mohseni	3
EE 432G-E	Electromagnetic Fields & Waves	SLC 223	T 6:30-9:15	Hostler	3
EE 482G-E	Adv. Communication & M. W. Lab	SLC 224 SLC 224	M 5:15-6:15 M 6:16-11	Yeroushalmi	3
EE 498G-B	Topics: Digital Filter Design	SLC 223	MWF 1-1:50	Srinivasan	3
EE 498G-E	Topics: IC Circuit Design	SLC 223	W 6:30-9:15	Choudhry	3
EGR 498G-E1	Topics: Expert Systems CIM	SLC 424	MW 6:30-7:45	Lee	3
EE 562G-E	Optical Communication	SLC 223	8-9:15	Armand	3
FE 590G-E	Thesis (01-03)	TBA	TBA	TBA	3
PHYSICS		10/1			
PHY 302G-E	Math in Physics and Science II	SLC 166	W 6:30-9:15	Bellas	3
PHY 310G-A	Mechanics	SLC 147	TTh 9:30-10:45	Loncoski	3
PHY 361G-A	Atomic Physics	SIC 42	TThE 1-1:50	Maxwell	4
PHV 262C A	Atomic Physics Lab	SIC 12	W 2.30.5.30	Maxwell	0
PHN 4000 F	Flootromographic	010 000	TTh 6 7.15	Hostlor	2
PHY 432G-E	Fields & Waves	5LU 223	11110-7:15	HUSUEI	3

PS 398A	Topics: Modern Middle East	SLC 204	TTh 1-2:30	Tutwiler	3
PS 398E	Topics: Public Policy	SLC 204	⊺ 6:30-9:30	Tuhy	3

Amer. Political Thought SLC 204 TTh 9:30-10:45 Tuhy

Constitutional Law SLC 204 MWF 2-2:50 Behuniak-Long 3

3

#### MATHEMATICS/COMPUTER SCIENCE

PS 332A PS 335A

MA 342A	Intro. to Topology	SLC 405	MW 4-5:15	Hong	3
MA 354A	Statistical Modeling	SLC 424	TTh 1-2:15	Merrill	3
MATH 362A	Intro. to Applied Math II	SLC 409	TTh 9:30-11	Sours	3
CS 328A	Analysis of	SLC 409	MWF 12-12:50	Andeson	3
	Aldorithms				



#### **Special Feature**

Wilkes College Masters degree in Health Administration is accredited and formally approved by the Division of Academic Program Approval, Department of Education of the Commonwealth of Pennsylvania. The College is an Associate Member of University Programs in Health Administration (AUPHA).

Wilkes College is a member of the Council of Graduate Schools in the United States and Pennsylvania Association of Graduate Schools.

The Wilkes College Master of Business Administration is currently offered in Lehigh Valley and Allentown area through Allentown College Sancti, Francisci Sales II.

The Division of Graduate Studies and Continuing Education is offering a variety of non-credit courses, workshops and seminars in professional development, cultural enrichment, and personal improvement. (There is a special brochure for the Continuing Education offerings.) Wilkes College Continuing Education is a member of the National Registry for Continuing Education and the Council on the Continuing Education Unit.

Evening and Weekend College Undergraduate Programs

# General Information

#### calenuar

Registration for Graduate Students - Spring 1988:

\*Please note: All registrations are to be made at the Registrar's Office. Further information concerning courses, etc., will be available at the Graduate Studies Office during the same hours listed below.

#### First day of Registration

December 24, 25, 31, 1987 through January 1, 1988.

#### **Extended Days of Registration**

Wednesday, Jan. 13	 		• •	.8:30	a.m.	to	8:00	p.m.
Thursday, Jan. 14	 			.8:30	a.m.	to	8:00	p.m.

#### **Classes Begin**

Wednesday, Jan. 20	
	(Follow Monday's Class Schedule)
Wednesday, Feb. 17	Fall Break
	begins at 10:00 p.m.
Monday, Feb. 22	Classes resume
	at 8:00 a.m.
Friday, March 25	Easter Break
	begins at 5:00 p.m.
Tuesday, April 5	Classes resume at 8:00 a.m.
Friday, May 6	Classes end at 5:00 p.m.
Monday, May 9 thro	uah

Monuay, May 9 through

Saturday, May 14.....Final Examinations Sunday, May 22, 1988 . . . Commencement at 11:00 a.m. Wilkes College Division of Graduate Studies and Continuing Education Wilkes-Barre. Pennsylvania 18766

Non-Profit Organization U.S. Postage **PAID** Wilkes-Barre, Pa. Permit No. 355

8861



will be calculated as of the date recorded on the official Withdrawal form.)

Students who have paid their tuition in full and who withdraw from courses or from the College will receive a refund of tuition, upon written request to the Dean of Graduate Studies, according to the following schedule:

Time of Withdrawal	<b>Tuition Refund</b>
Prior to January 20	100%
January 20 — February 2	80%
February 3 — February 16	60%
February 17 — February 24	40%

No refund will be issued after February 24. Course & Lab fees are non-refundable. No student who is suspended or expelled shall be entitled to any refund.

#### **Financial Aid**

Inquiries about financial aid should be made to the Financial Aid Office, Sturdevant Hall, second floor, 129 South Franklin Street.

#### Library

The Eugene Shedden Farley Library is open to all Wilkes stu-

Wilkes College offers the Master of Business Administration Degree, Master of Science in Electrical Engineering Degree, Master of Health Service Administration Degree, Master of Science Degrees in Mathematics and Physics, and a Master of Science Degree in Education with concentrations in Biology, Chemistry, Education, Educational Computing, Elementary Education, English, Education Development and Strategies, History, Mathematics or Physics.

Wilkes College Graduate programs are approved and accredited by the Pennsylvania Department of Education and Middle States Association of Colleges and Schools.

#### Application

Application for admission to Wilkes College Graduate Studies should be made to the Division of Graduate Studies and Continuing Education, Second Floor, Max Roth Center, 215 South Franklin Street, Wilkes-Barre, Pennsylvania, 18766.

#### Registration

Course registration is made at the Registrar's Office located in Sturdevant Hall, 129 South Franklin Street, Wilkes-Barre, Pennsylvania, 18766. Registration forms can be obtained by calling the Registrar's Office at 824-4651, ext. 350 or 303. Com-

pleted forms may be returned in person or by mail.

The College reserves the right to cancel or reschedule any course due to insufficient enrollment or any other reason. When possible, any students who have registered for courses that are subsequently cancelled or rescheduled will be notified as promptly as possible.

#### **Fees and Expenses**

The cost of each graduate credit is \$195 plus a \$3 per credit hour general College fee. Laboratory fees are as indicated.

Payment is to be made at the Finance Office, First Floor, Sturdevant Hall, 129 South Franklin Street, Wilkes-Barre, Pennsylvania, 18766.

Information about Veterans' Benefits is available through the Veterans' Affairs Office, First Floor, Sturdevant Hall.

Deferred Payment and Third-Party Billing forms can be obtained at the Finance Office. These forms must be submitted each semester.

#### Withdrawal

Graduate students may withdraw, without prejudice, from any course at any time during the first four weeks of the semester, providing they give written notice to the instructor and to the Dean of Graduate Studies within this four-week period. Withdrawal and Add forms can be obtained at the Graduate Studies Office. (Charges for courses from which a student withdraws dents. Graduate students may borrow books from the Library by presenting their College identification cards. The identification cards may be obtained at the Registrar's Office. Hours for the Library are posted at the beginning of each academic session.

#### Bookstore

The College Bookstore is located in the lower level of Pickering Hall. The Bookstore is open from 8:30 a.m. to 4:30 p.m. Monday through Friday. The Bookstore will be open January 18 and 19 from 8:00 a.m. to 8:00 p.m. January 20 and 21 from 8:00 a.m. to 6:30 p.m.

#### For further information, write or call:

#### DR. MAHMOUD H. FAHMY, Dean

Division of Graduate Studies and Continuing Education 215 South Franklin Street Wilkes-Barre, Pennsylvania 18766

#### Phone: (717) 824-4651 Extension 226

Toll-free: from Scranton, Pennsylvania 342-5617

from elsewhere in Pennsylvania (800) 572-4444 from outside of Pennsylvania (Middle Atlantic and New England Regions) (800) 537-4444



# Wilkes College Spring Semester 1988 – GENERAL INFORMATION –

## Calendar for Spring Semester 1988

Registration for Evening College and Part-Time Day-School Students:

Classes begin at 8:00 a.m.
.Winter recess begins at 5:00 p.m.
Classes resume at 8:00 a.m.
.Easter recess begins at 5:00 p.m.
Classes resume at 8:00 a.m.
Classes end
lay, May 14Final Examinations

Weekend College (at Keystone Junior College)

January 8 to April 17 (including Final Examinations) Registration .....January 8 (Weekender Office, La Plume, Pa.) 4:30 - 6:30 p.m.

## Accreditation

Wilkes College is accredited by The Department of Public Instruction of the State of Pennsylvania and the Middle States Association of Colleges and Secondary Schools. The Chemistry curriculum has been certified by the American Chemical Society. The Electrical Engineering and Materials Engineering programs are fully accredited by the ABET, the sole accrediting agency for engineering and technology programs in the U.S.

## Admissions

Application for admission to Wilkes College as an evening college; part-time day-school or weekend college student should be made to the Office of Evening, Summer and Weekend College, Chase Hall, 184 South River Street, Wilkes-Barre, Pennsylvania 18766. Application for admission to Wilkes College as a full-time undergraduate student should be made to the Dean of Admissions.

## Bookstore

Books, stationery and supplies may be purchased at the College Bookstore, located on the lower level of Pickering Hall. They must be paid for at the time of purchase. The Bookstore is open from 8:30 a.m. to 4:30 p.m. Monday through Friday.

## Change Of Schedule

The College reserves the right to cancel or reschedule any course due to insufficient enrollment or any other reason. When possible, any change in the course schedule will be posted during registration. Students who have registered for courses that are subsequently cancelled or rescheduled will be notified as promptly as possible. A "Certificate of Achievement" is available to undergraduate students in the field of Business Administration who earn 42 hours of credit in Evening College and Summer School programs with at least 24 hours in Business Administration and 18 hours in general education. Specific course requirements are available on request.

All charges must be paid at the time registration forms are processed.

Undergraduate students who register for fewer than 12 credits pay \$150 per credit.
Undergraduate students who register for 12 through 18 credits pay a flat tuition fee of \$3,215 per semester. (Students who take more than 18 credits pay \$150 for each credit above 18.)

Part-time as well as full-time students have a variety of aid programs available to them, but students must make formal application to establish their eligibility. Therefore, ALL undergraduate students are urged to apply for Financial Aid. Forms for this purpose are available in the Financial Aid Office. Inquiries about financial aid should be made to the Financial Aid Office. Information about Veterans' Benefits is available through the Veterans' Affairs Office (Ext. 227).

The Eugene Shedden Farley Library is open to all Wilkes students. Students may borrow books from the Library by presenting their College identification cards. Hours are posted at the beginning of each academic session.

Evening college; part-time day-school and weekend college students may withdraw, without prejudice, from any course at any time during the first 6 weeks of the semester, providing that they give written notice to the instructor and to the Director of Evening, Summer and Weekend College within this 6-week period. (Charges for courses from which a student withdraws will be calculated as of the date recorded on the official withdrawal form.)

Students who have paid their tuition in full and who withdraw from courses or from the College will receive a refund of tuition, upon written request to the Comptroller's Office, according to the following schedule:

Time of withdrawal First two weeks Tuition Refund 80%

## **Expenses**

## Financial Aid For Undergraduates

Library

**Withdrawal** 

Accreditation

struction of the State of Pennsylvania and the Middle States Association of Colleges and Secondary Schools. The Chemistry curriculum has been certified by the American Chemical Society. The Electrical Engineering and Materials Engineering programs are fully accredited by the ABET, the sole accrediting agency for engineering and technology programs in the U.S.

## Admissions

Application for admission to Wilkes College as an evening college; part-time day-school or weekend college student should be made to the Office of Evening, Summer and Weekend College, Chase Hall, 184 South River Street, Wilkes-Barre, Pennsylvania 18766. Application for admission to Wilkes College as a full-time undergraduate student should be made to the Dean of Admissions.

## **Bookstore**

Books, stationery and supplies may be purchased at the College Bookstore, located on the lower level of Pickering Hall. They must be paid for at the time of purchase. The Bookstore is open from 8:30 a.m. to 4:30 p.m. Monday through Friday.

## Change Of Schedule

The College reserves the right to cancel or reschedule any course due to insufficient enrollment or any other reason. When possible, any change in the course schedule will be posted during registration. Students who have registered for courses that are subsequently cancelled or rescheduled will be notified as promptly as possible.

## **Day-Care**

Day-Care is available for young children of Wilkes students from 7:00 a.m. to 5:30 p.m. at Child Development Council Centers near the campus. These services are partially subsidized by the College. For further information, contact Ms. Anne Graham, 824-4651, extension 367.

## Degree Programs

### Bachelor of Arts:

Art Biology Chemistry Communication Studies Computer Information Systems Computer Science Earth & Environmental Sciences Economics English

#### Bachelor of Science:

Accounting Biology Business Administration Chemistry Computer Science Earth & Environmental Sciences Engineering (a) Electrical Engineering (b) Engineering Management

Bachelor of Fine Arts Bachelor of Music Foreign Languages History Individualized Studies International Studies Mathematics Philosophy Physics Political Science Psychology Sociology Theater Arts

(c) Environmental Engineering (d) Materials Engineering Individualized Studies Mathematics Medical Technology Medical & Health Physics Nursing Physics Inquiries about financial aid should be made to the Financial Aid Office. Information about Veterans' Benefits is available through the Veterans' Affairs Office (Ext. 227).

The Eugene Shedden Farley Library is open to all Wilkes students. Students may borrow books from the Library by presenting their College identification cards. Hours are posted at the beginning of each academic session.

Evening college; part-time day-school and weekend college students may withdraw, without prejudice, from any course at any time during the first 6 weeks of the semester, providing that they give written notice to the instructor and to the Director of Evening, Summer and Weekend College within this 6-week period. (Charges for courses from which a student withdraws will be calculated as of the date recorded on the official withdrawal form.)

Students who have paid their tuition in full and who withdraw from courses or from the College will receive a refund of tuition, upon written request to the Comptroller's Office, according to the following schedule:

**Time of withdrawal** First two weeks Third and fourth weeks Fifth week After fifth week

Weekend College students who have paid their tuition in full and who withdraw from Weekend College classes will receive a refund of one-half of their tuition through the second weekend of classes, **upon written request to the Comptroller's Office within this period**. No refunds will be made after the second weekend of classes.

Fees are non-refundable. No student who is suspended or expelled shall be entitled to any refund.



For further information, write or call:

Barbara E. King, Director Evening, Summer and Weekend College Wilkes College Chase Hall, 184 South River Street Wilkes-Barre, Pennsylvania 18766 Phone: (717) 824-4651, Ext. 380 Toll-free: from Scranton, Pennsylvania 342-5617 from elsewhere in Pennsylvania (800) 572-4444 from outside of Pennsylvania [Middle-Atlantic and New England Regions] (800) 537-4444

Tuition Refund 80% 60% 40% no refund Library

Withdrawal

Information

## **VILKES COLLEGE SPRING SEMESTER 1988**

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#### REGISTRATION

#### **LOCATION**

Evening, Summer and Weekend College Chase Hall, Second Floor

### **STUDY SKILLS WORKSHOPS**

(Evening Sessions)

- How to Schedule Your Time for Efficient Studying.
- How to Take Objective and Essay Tests.
- How to Take Notes from a Lecture and Read a Textbook.
- For further information please contact:
- Ms. Judy Fremont, Learning Center, 824-4651 Ext. 477

# **Undergraduate Division**

## **EVENING COLLEGE CLASSES**

## January 20 – May 14, 1988

#### (TIMES IN LIGHT FACE REPRESENT A.M. and TIMES IN BOLD FACE P.M.)

Course	Description	Room	Day & Hour Cr	edits
ACCOUNTI	NG:			
ACC 121 E	Introduction Financial Accounting (Prereq: Sophomore standing or permission of ins	DDD 202 structor)	Th <b>6:30-9:15</b>	3
ACC 122 E	Introduction Managerial Accounting (Prereq: ACC 121)	DDD 201	T <b>6:30-9:15</b>	3
ACC 212 E	Intermediate Accounting II (Prereq: ACC 122)	DDD 201	W 6:30-9:15	3
AEROSPAC	CE:			
AS 202 E	Development of Air Power II (Prereq: AS 201 or permission of instructor)	Capin 15	Th <b>5:00-5:50</b>	1
ANTHROP	OLOGY:			
ANT 101 E	Introduction to Anthropology	SLC 207	W 6:30-9:15	3
BUSINESS	ADMINISTRATION:			
BA 220 E	Real Estate	SLC 207	M 6:30-9:15	3
BA 222 E	Marketing	DDD 202	M 6:30-9:15	3
BA 226 E	Investments	DDD 201	Th 6:30-9:15	3
BA 232 E	Business Law-Agency + Sales	SLC 270	M 6:30-9:15	3
BA 240 E	Property Insurance	DDD 101	W 6:30-9:15	3
BA 254 E	Organizational Design and Behavior	SLC 359	T 6:30-9:15	3
COMPUTE	R SCIENCE:			
CS 115 E	Survey of Computers and Data Processing (IBM-PC)	SLC 405	M W 6:30-7:45	3
CS 329 E	Microcomputer Operation & Design (Prereq: CS 320/EE 341)	SLC 1	W 6:00-7:50	3
CS 329 E1	Laboratory	SLC 222	W 8:00-10:00	0
EARTH & E	ENVIRONMENTAL SCIENCES:			
EES 115 E	Survey of Geology	SLC 1	Th 6:00-7:50	3
EES 115 E1	Laboratory	SLC 435	Th 8:00-10:00	0
EES 280 E	Principles of Astronomy (Fee: \$40.00)	SLC 435	M W 6:30-7:50	4
EES 280 E1	Laboratory	SLC 435	M W 8:00-9:20	0
EES 382 E	Petrology (Prereq: EES 211 and EES 381) (Fee: \$40.00)	SLC 434	T 6:00-7:50	3
EES 382 E1	Laboratory	SLC 434	T 8:00-9:50	0
EES 394 E	Advanced Field Study (Prereq: EES 194 or equivalent experience) (Fee: Variable)	SLC 435	Th <b>6:00-7:50</b>	3

Course	Description	Room	Day & Hour C	redits
ENG 152 E1	Western World Literature II (Prereq: ENG 151)	SLC 1	M 6:30-9:15	3
ENG 152 E2	Western World Literature II (Prereq: ENG 151)	SLC 334	T 6:30-9:15	3
ENG 301 E	Literary Criticism (Prereq: ENG 152 or 254)	KBY 302	Th <b>6:00-9:00</b>	3
ENG 312 E	Chaucer (Prereq: ENG 152 or 254)	SLC 347	T 6:00-9:00	3
ENG 397 E	Seminar (Prereq: Approval of department cha	KBY 302 airman is required)	W 6:00-9:00	3
FOREIGN LA	ANGUAGES:			
Chinese 101 E	Elementary Chinese	TBA	T Th 7:00-8:15	3
French 102 E	Elementary French II (Prereq: Permission of instructor)	TBA	T Th <b>6:00-7:15</b>	3
German 102 E	Elementary German II (Prereq: Permission of instructor)	TBA	T Th <b>7:00-8:15</b>	3
Hebrew 101 E	Elementary Hebrew	TBA	M W 7:00-8:15	3
Italian 102 E	Elementary Italian II (Prereq: Permission of instructor)	TBA	T Th 6:00-7:15	3
Latin 101 E	Elementary Latin	TBA	M W 7:00-8:15	3
Russian 102 E	Elementary Russian II (Prereq: Permission of instructor)	TBA	T Th <b>7:00-8:15</b>	3
Spanish 101 E	Elementary Spanish	ТВА	T Th <b>7:00-8:15</b>	3
HISTORY:				
HST 101 E	World Civilization I	SLC 270	W 6:30-9:15	3
HST 102 E	World Civilization II	SLC 318	T 6:30-9:15	3
HST 333 E	The Age of Big Business	Capin 15	M 6:30-9:15	3
MATHEMATI	CS:			
MTH 102 E	Fundamentals of Math II (Prereq: MTH 101)	SLC 405	M W 8:00-9:15	3
MTH 111 E	Calculus I (Prereq: MTH 100 or at least three y mathematics including Geometry, A	SLC 405 rears of secondary school Igebra II, and topics in Trigonome	T Th 6:30-8:15	4
MTH 112 E	Calculus II	SLC 411	M W 6:30-8:15	4
MTH 212 E	Multivariable Calculus (Prereq: MTH 112)	SLC 411	M W 6:30-8:15	4
MUSIC:				
MUS 101 E	Introduction to Music I	DDD 218	T 6:30-9:15	3
NURSING:				
NSG 204 E	Nursing Care Adult Client II	SLC 359	MW 6:30-9:15	8

ACC 2 ACC 3 BIO BIO 1

**BIO 1** 

**ECO** EC 23

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## **EARLY REGISTRATION**

**PLEASE POS'** 

## WILL BE ACCEPTED

## 8:30 A.M. - 4:30 P.M.

## AFTER DECEMBER 1, 1987

## WEEKEND COLLEGE CLASSES **Spring**, **1988**

on the campus of Keystone Junior College La Plume, Pennsylvania January 8 - April 17, 1988

Calendar — Spring, 1988

January 8, 9, 10 Jan. 29, 30, 31 February 19, 20, 21 March 11, 12, 13 March 25, 26, 27 \*April 15, 16, 17

Schedule A **Schedule B** Schedule C Fri. 6:30-8:30 Sat. 8:00-10:00 Sat. 6:00-8:00 Sat. 1:00-3:00 Sun. 8:00-10:00 Sat. 10:10-12:10 Sat. 3:10-5:10 Sun. 10:10-12:10 Sun. 1:00-3:00 Unless otherwise indicated, all courses in the Weekend College meet according to the above schedule.

(TIMES IN LIGHT FACE REPRESENT A.M. and TIMES IN BOLD FACE P.M.)

Course	Description	Room	Schedule	Credits
ACCOUN	TING:			
ACC 213 W	Auditing (Prereq: ACC 212)	TBA	В	3
ACC 398 W	Topics: Current Topics in Financial Accounting	TBA	C	3
BIOLOG	f:			
BIO 104 W	Biological Science II (Prereq: BIO 103)	TBA	А	3
BIO 113 W	Microbiology (Fee: \$35.00)	TBA	A & B	4
ECONON	IICS:			
EC 232 W	Applied Economic Statistics II Multivariate Analysis (Prereg: EC 231 or permission of instructor)	TBA	Α	3

LCONOMICS	•			
EC 101 E	Principles of Economics I	DDD 101	Th 6:30-9:15	3
EC 102 E	Principles of Economics II	SLC 347	W 6:30-9:15	3
EC 232 E	Applied Economic Statistic II (Prereq: EC 231 or permission of instructor) (Fee: \$20.00)	DDD 101	T 6:30-9:15	3
EC 232 *E	Laboratory	DDD 202	Th 1:00-2:45	0
EDUCATION				
ED 201 E	Introduction to Education (Prereq: Sophomore standing)	SLC 160	Th <b>6:30-9:15</b>	3
ED 302 E	Children's Literature	SLC 160	T 4:30-6:15	2
ED 322 E	Language Arts & Social Studies	SLC 207	Th <b>4:30-7:30</b>	3
ED 324 E	Arts in Early Childhood and Elementary Education	SLC 206	M 5:00-6:45	2
ED 362 E	Instruction in Early Childhood Education	KBY 302	M 6:30-9:15	3
ED 371 E	The Individual in the Classroom (Prereq: Enrollment in ED 380)	SLC 160	M W 5:30-6:45	3
ENGINEERIN	IG:			
EE 211 E	Circuit Theory I (Prereq: MTH 112)	SLC 424	T Th 6:30-7:45	3
EE 212 E	Circuit Theory II (Prereq: EE 211)	SLC 380	M W 8:00-9:15	3
EE 252 E	Electronics II (Prereq: EE 251)	SLC 380	M W 6:30-7:50	3
EE 254 E	Electronic Laboratory II (Prereq: To be taken with or after EE 252) (Fee: \$45.00)	SLC 125	Th <b>6:00-9:00</b>	1
EE 272 E	Solid State Devices (Prereq: MAE 210 and PHY 203)	SLC 424	T Th 8:00-9:15	3
EE 314 E	Control Systems (Prereq: EE 214)	SLC 318	M 6:30-9:15	3
EE 334 E	Electromagnetics Lab II (Prereq: EE 331) (Fee: \$40.00)	SLC 125	M 6:00-9:00	1
EE 342 E	Microcomputer Operation & Design (Prereq: EE 341/CS 320) (Fee: \$45.00)	SLC 1	W 6:00-7:50	3
EE 342 E1	Laboratory	SLC 222	W 8:00-10:00	0
EE 382 E	Advanced Communication and	SLC 1	M 5:15-6:15	4
	Antenna Lab (Prereq: Senior engineering standing) (Fee: \$45.00)	SLC 224	M 6:16-11:00	
EE 392 E	Senior Projects II (Prereq: EE 391)	SLC 1	W <b>5:00-5:50</b>	2
EGR 224 E	Heat and Mass Transfer (Prereq: PHY 201 and MTH 211)	SLC 403	T Th <b>8:00-9:15</b>	3
EGR 284 E	Measurement Lab II (Fee: \$30.00)	SLC 23	W 6:30-7:15	1
EGR 392 E	Senior Projects II (Prereq: EGR 391)	SLC 1	W <b>5:00-5:50</b>	2
EGR 398 E	Topics: Expert Systems in CIM (Prereq: Senior engineering standing)	SLC 424	M W 6:30-7:45	3
MAE 210 E	Introduction to Materials Science and Engineering (Prereq: PHY 201, 202)	SLC 403	T Th 6:30-7:50	3
MAE 332 E	Polymers (Prereq: MAE 210 and CHM 231) (Fee: \$35.00)	SLC 147	Th <b>6:30-9:15</b>	3
MAE 332 E1	Laboratory	SLC 11	T 6:30-9:15	0
ENGLISH:				
ENG 101 E	Composition I	SLC 311	M 6:30-9:15	3
ENG 102 E	Composition II (Prereq: ENG 101 or ENG 100)	KBY 302	⊺ 6:30-9:15	3

	Must take E1, E2, or E3 with F Lectur	6			
	(Prereq: NSG 203)	•			
ISG 204 E1	Laboratory		TBA	TBA	0
ISG 204 E2	Laboratory		TBA	TBA	0
ISG 204 E3	Laboratory		TBA	TBA	0
ISG 272 E	Clinical Application of Pharmacy (Prereq: Junior and Senior Nursing students an	nd Regist	SLC 380 tered Nurses)	T 6:30-9:15	3
NSG 303 E	Issues and Trends in Nursing (Prereq: NSG 204)		DDD 101	M Th <b>4:00-5:50</b>	3
HYSICAL E	DUCATION:				
PE 210 E	Contemporary Health Problems		SLC 147	W 6:30-8:30	2
РЕ 315-Е	Emergency Care Techniques (Prereq: Student must possess a current CPR of	card)	SLC 147	M 6:30-9:30	3
HYSICS:					
PHY 102 E	Physical Science II		SLC 166	Th 6:30-8:15	3
PHY 102 E1	Discussion		SLC 150	Th <b>5:00-5:50</b>	0
PHY 102 E2	Discussion		SLC 150	Th 8:30-9:15	0
PHY 106 *E	Laboratory (Fee: \$40.00)		SLC 151	Th 6:30-9:15	0
PHY 201 *E	Laboratory (Fee: \$40.00)		SLC 149	T 6:30-9:15	0
PHY 202 E	General Physics II (Prereq: PHY 201 or PHY 105) (Coreq: MTH 112) (Fee: \$40.00)		SLC 166	M 6:30-9:15	4
PHY 202 *E	Laboratory (Fee: \$40.00)		SLC 151	Th <b>6:30-9:15</b>	0
PHY 210 E	Introduction to Materials Science and Engineering (Prereq: PHY 201, 202)		SLC 403	T Th <b>6:30-7:50</b>	3
PHY 228 E	Principles of Astronomy (Fee: \$40.00)		SLC 435	M W 6:30-7:50	4
PHY 228 E1	Laboratory		SLC 435	M W 8:00-9:20	0
PHY 302 E	Mathematical Methods in Physics and the Sciences II (Prereq: MTH 211, MTH 212)		SLC 166	W 6:00-8:45	3
PHY 334 E	Electricity & Magnetism Lab II (Prereq: PHY 333) (Fee: \$40.00)		SLC 125	M 6:00-9:00	1
	SCIENCE:				
PS 102 E	Introduction to American Politics		SLC 270	T 6:30-9:15	3
PS 105 F	Modern Political Systems		SI C 270	Th 6:30-9:15	3
PS 398 E	Topics: Public Policy (Prereq: Permission of department, criterion department)	epending	SLC 204 on topic)	⊺ 6:30-9:15	3
SYCHOLO	GY:				
PSY 325 E	The Exceptional Individual (Prereq: PSY 101 and PSY 221)		SLC 347	M 6:30-9:20	3
PSY 397 E	Seminar (Prereq: Approval of department chairman is re	equired)	SLC 341	M 6:30-9:20	3
PSY 398 E	Topics: Cognition		SLC 347	Th <b>6:30-9:20</b>	3
OCIOLOGY	:				
SOC 101 E	Introduction to Sociology		SLC 166	T 6:30-9:15	3
SOC 200 E	The Family (Prereq: SOC 101, ANT 101, or approval of ins	tructor)	SLC 207	T 6:30-9:15	3
SOC 253 E	Interventive Strategies in Social Work		SLC 209	Th 6:30-9:15	3
SUC 398 E	lopics: Human Sexualíty		SLC 209	M 6:30-9:30	3

EC 330 W	F UDIIG T III AITCE	IDA	~	~	
ENGLISH	:				
ENG 151	Western World Literature I (Prereq: ENG 102 or equivalent in composition)	TBA	В	3	
PSYCHOL	LOGY:				
PSY 232 W	Human Behavior (Prereq: PSY 101)	TBA -	В	3	
PSY XXX W	ТВА	TBA	А	3	
SOCIOLOGY:					
SOC 275 W	Sociology of Minorities (Prereq: SOC 101, ANT 101, or approval of instruc	TBA ctor)	С	3	



## **DAY CLASSES**

January 20 - May 14, 1988 Part-time students interested in day-school classes should contact the Office of Evening, Summer and Weekend College.

### For further information, contact:

BARBARA E. KING, Director Evening, Summer and Weekend College WILKES COLLEGE Chase Hall, 184 S. River Street Wilkes-Barre, Pennsylvania 18766 Phone: (717) 824-4651 Ext. 380 Toll-free: from Scranton, Pa. 342-5617 from elsewhere in Pa. (800) 572-4444 from outside Pa. (Mid Atlantic) and New England regions (800) 537-4444