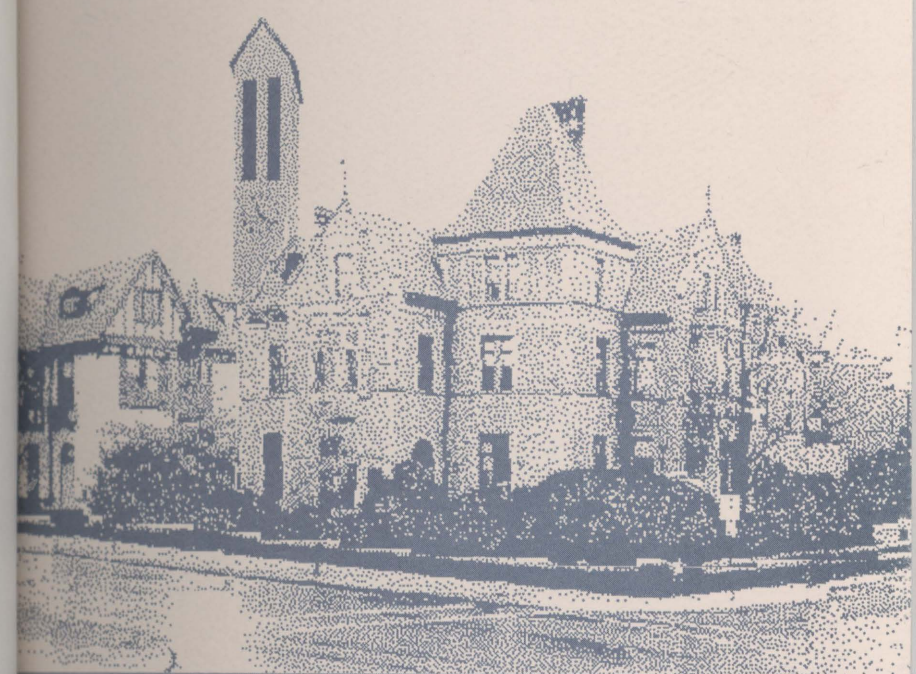
Bulletin

1991 - 1992



WILKES

UNIVERSITY

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General institutional policy.

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Statement of Nondiscrimination

Wilkes University affirms that all persons shall have equal access to admission, programs, and employment without regard to race, religion, sex, national origin, handicap, or age.

Statement of Disclaimer

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Wilkes University

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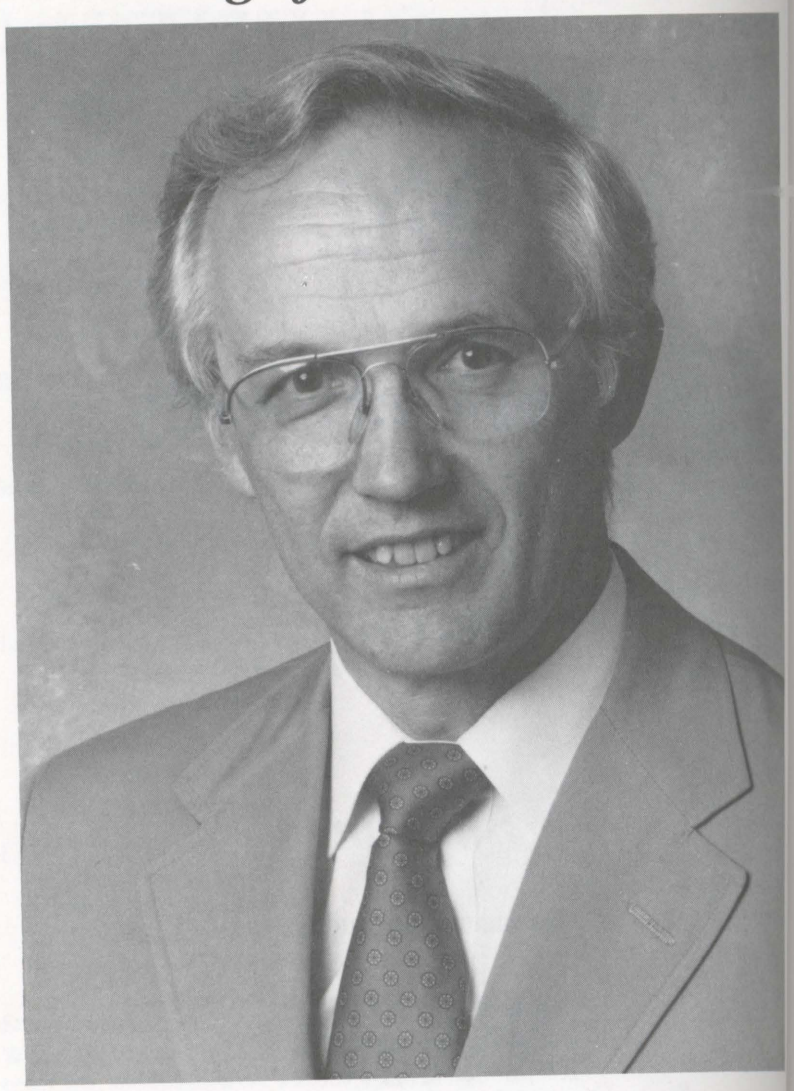
Baccalaureate Studies

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

A Message from the President



Christopher N. Breiseth, President

At Wilkes you will encounter an exciting intellectual and social community. As you define your role in this community of learners and scholars, you will come to know the challenges and joys — as well as the controversies — of the collegiate life that we share and love.

I believe that as you invest your time and talents at Wilkes to prepare to achieve your own definition of success and fulfillment, you will discover that you are becoming part of Wilkes and that Wilkes is becoming part of you.

An Educated Man or Woman

seeks truth, for without truth there can be no understanding;

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 University faculty as a guide to learning.

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Wilkes University

Overview

Wilkes is a comprehensive, independent institution of 2,200 undergraduate and 500 graduate students, located in the historic district of Wilkes-Barre in the Pocono region of northeastern Pennsylvania. Formerly Wilkes College, Wilkes was granted university status by the Commonwealth of Pennsylvania in January of 1990. The University is structured as three academic units: the School of Business, Society, and Public Policy; the School of Liberal Arts and Human Sciences; and the School of Science and Engineering. A broad range of bachelor's and master's programs are offered in the humanities, social and natural sciences, business administration, nursing, and engineering. The park-like campus parallels the Susquehanna River and features the newly constructed Marts Sports and Conference Center, fully equipped science and engineering facilities, and a number of architecturally significant nineteenth century mansions, renovated for use as residence halls and academic buildings. The center of regional theater, ballet, and musical performances, Wilkes-Barre is 2½ hours from the cultural resources of either New York City or Philadelphia. Wilkes draws its increasingly diverse student body from Maine to Florida, and especially from the New York-Philadelphia-Baltimore-Washington, D.C. population corridor. The University is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools, and has specialized accreditation in nursing and engineering.

The Wilkes undergraduate curriculum focuses on a strong and innovative core program in the arts and sciences, required of all students, which includes interdisciplinary seminars, instruction in public speaking, and technological literacy components. Majors are available in over twenty-five fields, with business administration, biology, engineering, nursing, psychology, communications, and music attracting the largest number of students. Teaching excellence is the highest priority for the 150-member faculty, while academic advising integrated with career planning is also stressed. Hands-on experiences are provided in laboratory, internship, and cooperative education settings, creating Wilkes' distinctive "craftsman-apprentice" learning environment.

Residential facilities on campus accommodate 950 students, and campus housing is available for all four years. Residential alternatives range from traditional single-sex dormitories to coeducational facilities, with men and women in different sections of the same building. Architecturally, residence halls vary from modern, multifloor buildings to mansions listed on the National Register of Historic Places. Medical and dental care, department stores, specialty shops, and banks are available within one block of the campus. The historic district includes a large number of churches and synagogues, which welcome students' participation in worship and youth activities.

An active and varied intramural program involves the majority of students. Intercollegiate athletics encompass fourteen sports, including the region's only collegiate football program. Athletic scholarships are awarded only in wrestling, which is a nationally competitive NCAA Division I program. Other sports are administered in strict conformity with NCAA Division III regulations.

History

The institution that is now Wilkes University was founded in 1933, when the Trustees of Bucknell University established a branch, two-year campus in Wilkes-Barre. The new college, known as Bucknell University Junior College, was successful in attracting as students, able and highly motivated young persons, virtually all of whom were the first members of their families to benefit from higher education. The college also received support and encouragement from leading members of the Wilkes-Barre Community, many of whom served on the Board of Trustees. The stately mansions on campus donated to the college, that are now used by the university for some of its residence halls and offices, testify to the tradition of community service and generosity characteristic of the Wilkes-Barre area's leadership. The college was especially fortunate to have its own inspired and talented leaders in Arnaud C. Marts, president of Bucknell, and Eugene S. Farley, director of the Wilkes-Barre campus.

In 1947, the institution became Wilkes College, an independent, non-denominational four-year college, with programs in the arts and sciences and a number of professional fields as well as a full program of extra-curricular activities. The student body and faculty grew rapidly in the 1950's, and expansion into graduate studies followed in the 1960's and 1970's.

In the 1980's, Wilkes gained recognition as an increasingly sophisticated regional center for teaching, academic research, cultural affairs, and public service programs. Designation as Wilkes University in 1990 capped an eventful and productive half century of development, and signaled the beginning of a new era of progress as an increasingly distinguished and prominent academic institution.

Statement of Institutional Mission and Goals

The Wilkes Tradition

Community Service

Founded in 1933 as a junior college, Wilkes came into existence in the midst of the economic crisis caused by the simultaneous collapse of anthracite coal mining in Northeastern Pennsylvania and the onset of the Great Depression in the nation and the world. The College fulfilled the important mission of making higher education accessible to ambitious but underprivileged youth and producing new leadership for an area in dire need of re-

newal and hope for the future. After World War II, Wilkes responded again to a community need, growing and transforming itself into a four-year college to aid in the massive task of preparing returning veterans for challenging and rewarding careers. More recently, as a part of the region's economic and cultural re-birth, Wilkes has developed into a comprehensive university, offering a broad range of bachelor's and master's degree programs, thus continuing the institution's tradition of service to the community through educational programs of high quality and direct relevance to the area's development.

Academic Excellence With Human Understanding

Wilkes' mission has been shaped in fundamental ways by the unique perspective on education of Eugene Shedden Farley, Wilkes president for more than thirty-five years, who possessed a distinctive vision of higher education – a vision articulated in his collected works, *Essays of an Educator.* Dr. Farley advocated a rigorous academic program which would require students to meet high standards and enable them to compete successfully in leading graduate and professional schools. Moreover, Dr. Farley's Quaker background led him to place equally strong emphasis on education's role in cultivating individual integrity, personal responsibility, and sensitivity to the beliefs and customs of persons from diverse cultural backgrounds. Wilkes' tradition of seeking an ethnically and religiously diverse faculty and student body and ensuring that campus clubs and associations welcome all students as members can be traced to Dr. Farley's guidance of the College in its formative years. The only independent, non-denominational, four-year college in the region, Wilkes played a special role in building a close-knit campus community composed of persons from a wide variety of traditions and points of view. As a result, academic excellence and a campus environment of tolerance of diversity have come to be strong components of the Wilkes tradition.

Institutional Role and Identity

Wilkes University defines itself as an independent, nondenominational institution at which 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 University has developed strong professional programs in accounting, business, communications, engineering, education, and nursing. Wilkes brings together qualified students and a 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 views itself as an institution at which students with strong motivation though vary-

ing preparation for college work have the opportunity for an education of high quality which can prepare them for the challenges of a rapidly changing world and for competitive graduate and professional schools.

Wilkes has a firm 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 ensure 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 well-equipped 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 commuting students in an atmosphere that promotes their full social and personal development.

A vital part of the mission of Wilkes University is service to Northeastern 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 cultural events that the University 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 University has become a regional center for engineering, science, and technology. The University 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 University'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, nursing, and health care administration are designed to prepare students for professional advancement.

Mission: Education and Service for a Dynamic Future

While a cherished tradition and a sense of institutional identity may provide inspiration and suggest broad guidelines, the question of institutional mission must be continually examined in light of developments in society and technology. Specifically, Wilkes must strive to identify goals and conduct programs which will be of value to its students and the community in the social and technological environment of the future.

Society will continue to be in a state of constant, transforming change in response to new information, technological advances, and unanticipated developments. A society characterized by extensive change demands education which prepares individuals and communities to be flexible and adaptive, ready to benefit from innovation. In particular, those in leadership positions must be educated to manage successive waves of change and to channel those changes productively. Wilkes' overarching imperative must be to educate its students and help the surrounding community to flourish in a setting of technological and societal dynamism.

Wilkes defines its mission as the education of men and women to develop essential intellectual skills, to master the core concepts and principles of their chosen fields and disciplines, to be sensitive to aesthetic concerns and ethical issues, and to be well prepared to adapt to change in their careers and in community life. The University is also committed to conduct applied research and outreach programs which will facilitate economic and cultural progress in the region while enriching the educational experiences of students and faculty members. By excelling in these approaches to teaching, research, and service, Wilkes aims to contribute to the supply of human resources and applied knowledge needed for a more prosperous, cultured, and humane society.

Goals

Baccalaureate Programs

A variety of carefully structured undergraduate educational programs derive from Wilkes's primary purpose. Each degree program is designed to achieve particular educational objectives; however, all baccalaureate programs share a set of distinctive goals which define the Wilkes approach to baccalaureate education. They include:

1. **A commitment to high standards of academic achievement and, thereby, to the integrity of the baccalaureate degree.**

   Wilkes offers programs of undergraduate studies that attract students who approach college primarily as an opportunity for intellectual growth and development. Course requirements are demanding and instructors' expectations of students are high. The result is an educational setting which, while supportive of students and sensitive to their individual needs, ultimately requires strong academic performance for program completion.

2. **Completion of an extensive core curriculum in the fundamental fields of the arts and sciences.**

   The core curriculum is designed to develop:

   — proficiency in written and oral communication;

   — facility in employing quantitative and other problem-solving methods;

   — sensitivity to ethical issues;

   — capacity to analyze issues critically and reach independent judgments regarding them;

   — understanding of the uses and challenges of science and technology;

   — appreciation of the arts and their societal roles;

   — knowledge of the history and contemporary functioning in the American setting of social and political institutions;

   — acquaintance with diverse perspectives on human nature and behavior; and

   — a sense of the cohesion of all knowledge and human understanding.

3. **An instructional approach which defines the student as an active participant rather than a passive observer in the classroom, laboratory, and other learning settings.**

   Education is viewed as much more than the transfer of information from instructors to students. Emphasis is placed on interactive instructional approaches, which provide opportunities for students to engage in a dialog with their instructors and fellow students and to become actively involved in the quest for and application of knowledge. The student is not a spectator but a primary actor in the educational process; the instructor's role is to assist in discovering, drawing out, and developing the student's capabilities. Students also develop initiative and leadership through a full program of extra curricular activities.

4. **Curricular and programmatic features which help students integrate theoretical understanding with the application of knowledge in professional and community settings.**

   Students are expected to learn from experience through case studies, simulation exercises, experiential learning programs, and participation in the initiatives their professors undertake to apply knowledge through outreach activities.

5. **An approach to curriculum which emphasizes principles, ideas, and analytical procedures that cut across and transcend the boundaries of particular disciplines and facilitate life-long learning.**

   Through interdisciplinary courses as well as projects or papers which require the synthesis of knowledge, students are encouraged to generalize and to develop skills that will enable them to continue learning throughout their lives, in their own as well as other fields of knowledge. A rapidly changing society places a premium on adaptability and breadth of knowledge, fostered by a grasp of fundamental principles rather than by narrow specialization in current practices. To prepare competent individuals for the future, Wilkes focuses on cultivating individuals who are well equipped to adapt to change.

6. **Careful, personalized academic and career advisement to ensure that students pursue coherent programs of study and devote appropriate attention to planning for the transition from college to a career or graduate study.**

   At Wilkes, the responsibility of a college educator is defined as extending beyond the classroom to include support for each student's formulation of long-range goals. The advisor-advisee relationship focuses on personal strategic planning for the student's future, integrating curricular decisions with the student's post-graduation objectives.

7. **Maintenance of an academic environment which is free from *a priori* commitments to particular ideologies or creeds.**

   Wilkes represents an important component of the rich diversity of American higher education — the independent, non-sectarian institution. While supportive of the moral, ethical, and religious development of its students, Wilkes does not subscribe to a particular denominational creed.

   Protection of the independence of the faculty and the curriculum from governmental prescription and the preservation of private sector initiative in higher education are fundamental commitments of the institution.

8. **Articulation and pursuit of the highest standards of personal integrity and professional responsibility.**

   Students, faculty, and staff constitute a community of learning whose members share responsibility for maintaining rules which promote honesty, self-discipline, and the common good, proscribing cheating, plagiarism, or other forms of misrepresentation.

Graduate Programs

In the last decade, Wilkes has increased substantially its engagement in graduate programs at the master's degree level in the arts and sciences as well as professional fields. Emphasis has been placed on programs that are responsive to student needs for career advancement and the institution's role in applied research and outreach to the region. The graduate program, viewed as a whole, has the following defining and distinctive goals:

1. A focus on programs designed for persons who are seeking personal growth, career advancement, and professional development.
2. Concentration on graduate degree programs intended to advance the economic and cultural development of the region.
3. Engagement in outreach programs which link external organizations with campus academic life and provide opportunities for applied research to graduate students and faculty members.
4. A multi-disciplinary approach to graduate studies, emphasizing breadth and adaptability to changing professional and societal conditions.
5. The development of carefully structured cooperative agreements, which provide for the offering of other institutions' programs on the Wilkes campus and the offering of Wilkes's programs on other campuses in the region.
6. Concentration on graduate programs in fields which are already strong in terms of faculty, facilities, and library resources at the undergraduate level and which will be augmented by graduate level offerings.

Wilkes envisions an expanding role in graduate education; however, the primary focus of the institution will remain on excellence in undergraduate studies.

Continuing Education and Cultural Affairs

A variety of non-credit courses, exhibits, workshops, and performances are provided to enhance community life and to help individuals attain career goals. The Sordoni Art Gallery brings programming in the fine arts to both the campus and the Wilkes-Barre area. Throughout the year, music and theater programs offer concerts and dramatic productions at the Dorothy Dickson Darte Center for the Performing Arts. Continuing education courses are offered for personal educational enrichment as well as for the preparation of new entrants to the job market and the in-service training of established professionals.

In Conclusion

The faculty, administration, and Board of Trustees continually assess the purposes and goals of Wilkes University and the programs designed to attain them. The unchanging principle guiding the University is to provide educational opportunities and outreach services which are responsive to student and community needs and consistent with Wilkes's tradition of service, excellence, and diversity.

Accreditation

Wilkes University offers degrees and programs approved by the Department of Education of the Commonwealth of Pennsylvania and accredited by the Commission on Higher Education of 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 **E. S. Farley Library,** named for Wilkes's first president, exists to provide its users with effective access to recorded information. The Library has acquired a substantial collection of carefully selected materials in a variety of formats and media, including nearly 200,000 volumes, 1,200 current journal and newspaper subscriptions, and over 500,000 microforms. Particular subject strengths include English literature, American cultural history, and the history of science. The Farley Library's automated catalog system enables users to search the various collections at Wilkes (books, journals,

and audiovisual materials) by author, title, and subject on public access terminals. Online database searching is available to students and faculty through the Reference Department of the Library. Special facilities include a microcomputer lab, special collections rooms, audio/visual resources and microform equipment. Library collections are supplemented by cooperative arrangements with other libraries. Through a variety of printed and online sources, the Library is able to identify and locate virtually any published materials needed by Library users.

The **Dorothy Dickson Darte Center for the Performing Arts** features a fully-equipped, 500-seat theater on a site donated by the Wyoming Valley Society of Arts and Sciences. The Center's facilities include 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 university 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 University'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 in 1973 by The Andrew J. Sordoni Foundation, Inc. is located in Stark Learning Center. The main purpose of this modern facility is to present art exhibitions to enrich campus and community life. 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. The print collection includes works of the 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, Honorary Chairman of the 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.

Academic Computing Facilities include two Digital Equipment Corporation VAX computer systems connected to an ETHERNET backbone located in the Stark Learning Center. The VAX 6310, with 32-MBytes of main memory and 2.4-GBytes of disk space, and the MV3500, with 32-MBytes of main memory and 2.3-GBytes of disk space, currently support over 120 terminal and dial-up access points as well as various printers and peripherals. These systems are used not only for programming but also for statis-

tics, science, simulation and electronic mail. Users of the VAX systems have access to PREPnet and INTERNET networks. Various microcomputer systems located in Stark Learning Center and connected to the VAX network allow file transfer from and to the VAX systems. Microcomputer laboratories containing IBM PC, PC compatible, Apple Macintosh and Apple IIe systems are located in Fortinsky Hall, Farley Library and Stark Learning Center. The various microcomputer laboratories are used for instruction as well as general student use. A growing library of software is available on the mini and microcomputer systems for use by students and faculty. Other specialized mini/microcomputer laboratories include the CAD/CAM and CAE/Manufacturing Labs. The University library system is run on the Hewlett Packard 3000/68 with 5-MBytes of memory and 2.5-GBytes of disk space.

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. It also houses the offices of the Deans of Student Affairs and the Office of Evening, Summer and Keystone Weekend Programs.

The **Arnaud C. Marts Sports and Conference Center,** named in honor of the person most responsible for the founding and nurturing of Wilkes University, opened in 1989. The three-story, 75,000-square-foot building on South Franklin Street houses the new gymnasium, with dedicated space for health facilities, physical education classes, faculty offices, intramural and intercollegiate sports, and the offices of the Athletic Director and the Associate Director of Athletics. The gymnasium seats 3,600 people. In addition, the Marts Center provides pleasant conference facilities, classrooms, and the Registrar's Office. Dr. Marts, while serving as president of Bucknell University, made the decision to establish a branch campus of Bucknell in Wilkes-Barre.

The University's **Residence Halls** house 950 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 University 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.

Admissions

Admission

Required High School Preparation

A student's secondary school preparation should include a college preparatory curriculum with four years of English, three years of mathematics, two years of a foreign language, two years of science (including a laboratory component), three years of social studies and, if available, introduction to computing. 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) 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 programs.

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 $25 application fee.

Admissions Tests

The Scholastic Aptitude Test (SAT) of the College Entrance Examination Board or the Achievement College Test (ACT) 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 University code number 2977.

Acceptance of Admission and Deposit

After receipt of the secondary school record, the secondary school recommendations, and the SAT or ACT scores, the Admissions Office acts upon all applications. Notification of action is sent immediately. Resident students should guarantee their place in the entering class by forwarding a $200 tuition and residence hall deposit to the Office of Admissions by May 1. Commuting students are required to forward a $100 tuition deposit to the Admissions Office by May 1 to secure their place. (Fees applicable for September, 1991.)

Applicants for the degree programs in music and theater will be required to audition for, and interview with, the department faculty.

The University 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 University 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 University, 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 University 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.

Admission of Transfer Students

The University 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 transcript from each post-secondary institution attended, and their SAT or ACT 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 Chairperson of the Department of Nursing.

All transfer students must complete a minimum of 30 credits (exclusive of advanced placement credit awarded by Wilkes) and a minimum of one-half of their major field credits at Wilkes University.

Transfer students from two-year institutions must complete a minimum of 60 credits at baccalaureate degree-granting institutions.

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

Transfer students should consult the Graduation Requirements on page 74 of this Bulletin for institution-wide graduation requirements.

University policy prohibits the Office of Admissions from admitting any student 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 another college or university will be considered for admission on a case by case basis.

Readmission to the University

Students who have been enrolled full-time at the University and have terminated their studies but wish to return as full-time students must contact the Registrar's Office and meet with one of the deans in the Student Affairs Office as the first step in the readmission process.

Admission of Part-time Students

Those who wish to enroll as part-time students should contact the Office of Evening, Summer, and Weekend Programs to discuss their plans and to obtain an Application for Admission. Students who have completed college-level 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 Evening, Summer, and Weekend Office.

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 Programs as the first step in this process. Students who have completed 30 or more credits and have maintained a grade point average of 2.00 will 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 made.

Advanced Placement Credit

Wilkes University 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.

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 University, a student may wish to take an examination demonstrating competence in a particular course. The interested student should apply to the appropriate department chairperson for permission to take a challenge examination. The chairperson will approve the student's application in writing only on the basis of a judgment that the student has adequate background in the field. If denied a challenge examination, the student may appeal to the appropriate school dean. The student may not challenge a course that he/she has failed.

A fee of $25 per credit will be assessed by the Financial Management Office for each approved challenge examination. The student must present a receipt to the department chairperson at least thirty days before the examination will be administered. Credit for the course is given and a grade of P recorded if the student passes the examination. No grade or credit is recorded if the student fails the examination.

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.

College-Level Examination Program

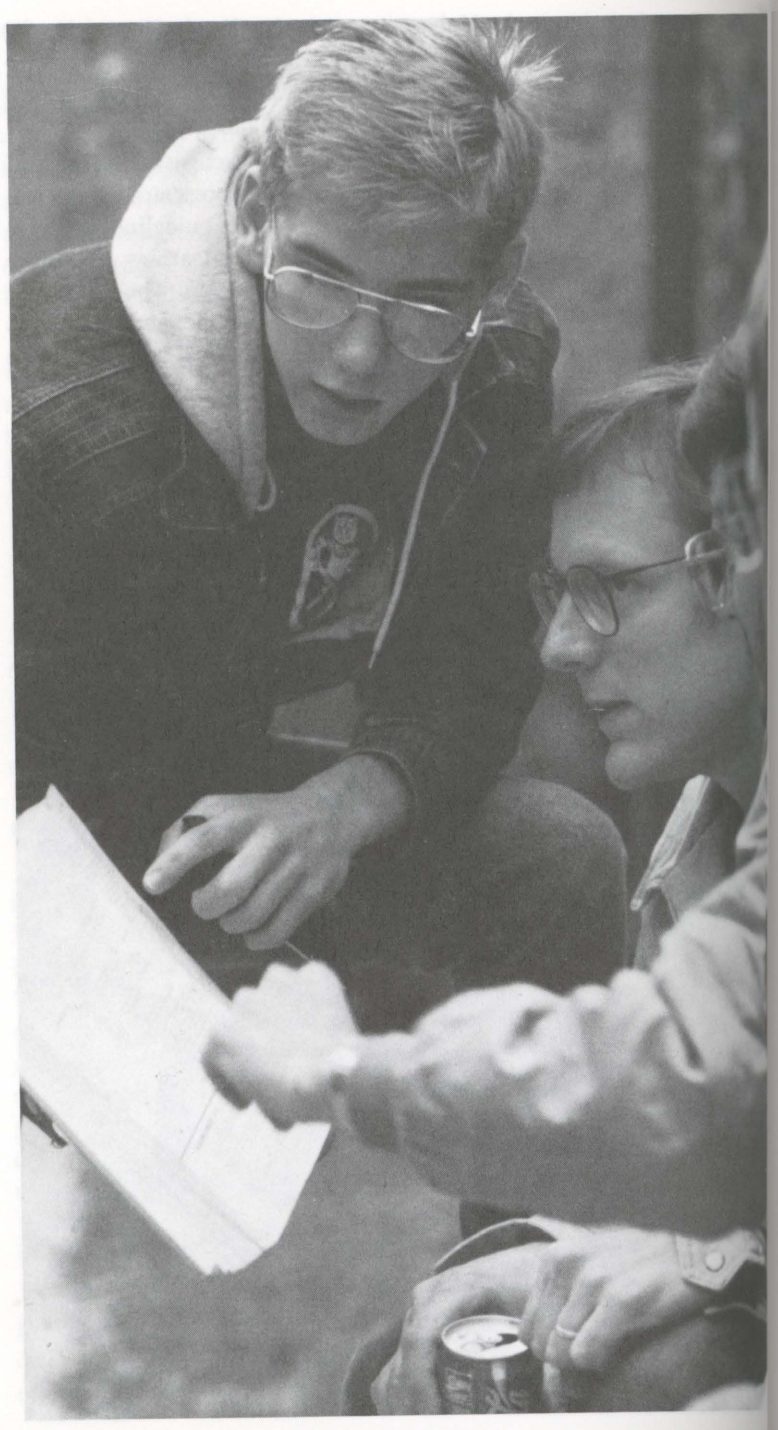
The University grants credits on the basis of satisfactory performance on the Subject Examinations, **not** the General Examinations, of the College Level Examination Program (CLEP) administered by the College Entrance Examination Board. CLEP credits from an accredited institution are transferable to the University. 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. Inquiries about CLEP should be addressed to the Office of Evening, Summer, and Weekend Programs. Official scores on CLEP Subject Examinations should be forwarded directly to the Office of Evening, Summer, and Weekend Programs for evaluation.

Experiential Learning

Credit for life experience may be granted for documented college-level learning that a student acquires through non-collegiate experiences. This credit is awarded for the learning derived from life experiences, **not** for the experiences themselves.

Soon after admission to the University, students who plan to petition for experiential learning credit must inform their academic advisor of their intent. All other means of securing credit for demonstrated competencies must have been exhausted before applying for experiential learning credit.

Credit awarded for experiential learning is based exclusively on Wilkes' evaluation of the demonstrated knowledge which is presented in the student's petition for experiential learning credit. Specific guidelines and procedures for the petitioning and awarding of experiential learning credits are available to interested students at the Registrar's Office. The Academic Standards Committee of the faculty maintains the guidelines and procedures of the Policy on Experiential Learning and makes the final decision on the awarding of credit.



Expenses and Financial Assistance

Student Expenses

The following chart summarizes student expenses for the 1991-92 academic year which offically begins with the 1991 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 Financial Management Office.

Student Expenses for 1991-92

Full-time Undergraduate:	**Assessment**	**Each Semester**	**Total for Year**
*Tuition (12-18 Credits)	Per Semester	$4,475	$8,950
Room:			
in Rifkin Hall	Per Semester	$1,500	$3,000
in Other Residence Halls	Per Semester	$1,275	$2,550
Board			
19 Meal Plan	Per Semester	$ 850	$1,700
14 Meal Plan	Per Semester	$ 787	$1,574
Commuters Only			
9 Meal Plan	Per Semester	$ 448	$ 896
5 Meal Plan	Per Semester	$ 265	$ 530
Room Damage Deposit	One Time	$ 50	—
General University Fee	Per Semester	$ 125	$ 250
Activity Fee	Per Semester	$37.50	$ 75

*Credits above 18 will be assessed at the rate of $250 per credit hour.

Part-time Undergraduate:			
Tuition (1-11½ credits)	Per Credit	$ 250	—
General University Fee	Per Credit	$ 5	—

Summer Sessions — Undergraduate:			
Tuition	Per Credit	$ 250	—
General College Fee	Per Credit	$ 5	—
Summer Board	Per Week	$ 58	—
Summer Room	Per Week	$ 65	—
Room Damage Deposit	One Time	$ 50	—

Other Fees and Charges:			
Acceptance Deposit:			
Residence Hall	One Time	$ 100	—
Tuition	One Time	$ 100	—
Application Fee	One Time	$ 25	—
Applied Music Fees:			
½ hour private lesson		$ 200	—
1 hour private lesson		$ 400	—
Audit Fee:			
Full-time Students	No Tuition Charge	—	—
Part-time Students, Summer, Fall, Spring	Per Credit	$ 125	—

Other Fees and Charges:	**Assessment**	**Each Semester**	**Total for Year**
Challenge Exam	Per Credit	$ 25	—
Graduation Fee	One Time	$ 100	—
Late Registration Fee	Per Semester	$ 25	—
Medical Technology Fee (During Clinical Training)	Per Semester	$ 519	$1,038
Music Major Fee	Per Semester	$ 25	$ 50
New Student Orientation Fee	One Time	$ 65	—
Nurses Professional Liability Insurance	Per Year	—	$ 15
Replacement of Lost ID cards	Each	$ 10	—
Returned Check Charge	Each	$ 20	—

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. All payments are made directly to Wilkes University, P.O. Box 2834, Wilkes-Barre, PA 18701-2834. Questions concerning charges or payments should be directed to the Coordinator of Student Accounts in the Financial Management Office.

Students who fail to pay all indebtedness to the University shall not be permitted to receive any degree, certificate, or transcript of grades. Nor shall they participate in Commencement activities.

Fall and Spring Full-time Tuition

The unfunded cost of full-time tuition and fees will be paid or satisfactory arrangements made with the Director, Financial Management, or his designee two weeks before the day on which classes begin. Unfunded costs are defined as the total of all appropriate charges for tuition, fees, room and board, etc., less the total of all approved financial aid awarded or credited to the student account for each semester or other instructional period. Satisfactory arrangements are defined as:

a. Enrollment in the Monthly Payment Option plan (discussed below);
b. Participation in the deferred employer reimbursement plan;
c. Enrollment in one of the third-party, sponsored tuition coverage plans (ROTC Scholarship, Bureau of Vocational Rehabilitation, Office of the Blind, etc.).

If payment in full or satisfactory arrangements are not made before the first day of class each semester, the registration for that semester will be cancelled and the student will not be allowed to attend classes. In order to be reenrolled and reregistered, the student will be required to pay a late registration fee of $25 in cash before registering. If satisfactory arrangements are agreed upon and payments are delinquent, a $10 late fee may be charged for each occurrence. Students whose accounts are three payments late will be cancelled from the monthly payment option plan and the full unpaid amount will immediately become due and payable. All students who fall into this category and those students who have been written off as bad debts or have been turned over to a collection agency will not be eligible for consideration of any other alternative financial arrangements.

Students who have applied for a Stafford Loan (Guaranteed Student Loan) where approval has not been granted by the bank will be required to pay the lesser of $300 or 25% of the loan requested two weeks before the first day on which classes begin. If the Stafford Loan (Guaranteed Student Loan) is subsequently approved, refunds of overpayments will then be made after the loan check is posted to the student's account.

All financial arrangements are to be processed by the Director, Financial Management, or his designee and approved by the Vice President, Business Affairs/Auxiliary Enterprises or his designee. No other University officer or employee will be permitted to negotiate financial arrangements for the settlement of student accounts.

Summer, Fall and Spring Part-time Tuition

Charges for summer and/or part-time tuition and fees must be paid in full on or before the first day of classes unless covered by the deferred employer reimbursement policy. The deferred payment policy is described below.

Intersession Tuition

Tuition charges for intersession semesters must be paid in full on or before the first day of class. The deferred payment option does **not** apply to intersession charges.

Deferred Payment Policy (Employer Reimbursed)

Deferred payments for employer reimbursement and third party payor arrangements will be permitted, provided the student makes application and receives approval and delivers the completed documents one full week before classes begin. Graduating seniors are **not** eligible for the deferred payment option.

Monthly Payments

Wilkes has developed an interest-free, ten month installment payment plan (IPP) to help ease the burden of financing an education. Arrangements may be made to finance any amount between $300 and the full cost of tuition and fees. Payments begin in June and end in March of each academic year. IPP applications for the upcoming academic year are available in April of each year. There is a minimal annual application fee. For more information write to Tuition Management Systems, Inc., P.O. Box 933, Scranton, PA 18501-0933, or call 1-800-722-4867.

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 University 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 University 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 1-800-225-6783.

VISA/MasterCard

Wilkes University accepts VISA and MasterCard for tuition and fee payments.

Tuition Discounts

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

Alumni Discount: Alumni qualify for a 10% discount on tuition for undergraduate and 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 the spouse and children of Wilkes University alumni. The discount extends throughout the student's **undergraduate** year as long as the student meets the institution's academic standards policy and is enrolled on a full-time basis.

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 University is a member of the Tuition Exchange Plan which provides limited opportunities for faculty children from one college or university to enjoy tuition remission benefits at another institution. Students who are dependents of faculty and administration should consult the Tuition Exchange Liaison Officer at their home institutions 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 University 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 University**, which is available at the Financial Aid Office.)

Students suspended from the University 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:		
Tuition:	The University will cancel 100 percent of the tuition charges, less a deposit of $100, if *written* notice of cancellation is received by the Registrar on or before the first day of classes. Failure to submit proper written notification will result in the assessment of full charges. Policy guidelines for refunds processed after the first day of classes are as follows:	
Total Withdrawal	First Two Weeks	80%
	Third & Fourth Weeks	60%
	Fifth Week	40%
	After Fifth Week	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	The institution will refund housing rental charges, less a deposit of $100.00, so long as written notification of cancellation is made to the Director, Residence Life Office, on or before the first day of classes each semester. After the first day of classes, no refund on room charges will be allowed.	
Board	The institution will refund board charges in full, less a deposit of $50, if written notification of cancellation is made to the Director, Residence Life Office, on or before the first day of classes each semester. Subsequent board charges will be refunded on a pro rata basis, less a withdrawal fee of $100.00	
Summer Sessions	First week of First or Second Sessions and first two weeks of Evening Session	50%
	After stated period	No refund
Weekend College	Through second weekend	50%
	After second weekend	No refund

*Fees are non-refundable.

Financial Aid

Wilkes University 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 University 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. All applicants should also apply for financial assistance, both need-based and achievement-based.

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 University,** which is also available at the Financial Aid Office.

Application Procedures

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

2. Complete the PHEAA/Federal Student Aid Application and forward it to PHEAA, Harrisburg, PA. The University 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 Wilkes University code is 2977.

4. Students who desire to participate in the Stafford Loan (G.S.L.) 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 48, Wilkes University is approved to participate in PHEAA's Scholars in Education Program and in the Federal Congressional Teachers' Scholarship. Also, several

academic units at the University have scholarships available to qualified students. These include the School of Business, Society and Public Policy and the School of Science and Engineering as well as the Athletic Department (wrestling only); Biology Department, English Department, History Department, Music, Theater and Dance Department, Nursing Department, Political Science Department and the Sociology 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 University 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. Students should inquire about these opportunities at the Financial Aid Office. The Office of Career Services also operates a JOB LOCATION DEVELOPMENT PROGRAM (JLD) to help students obtain employment opportunities off-campus. Students are paid by the employer for whom they work.

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 University also has a Veterans Affairs Office to assist students in obtaining benefits.

Financial Aid for Part-time Students

The Pell Grant, Stafford Loan (G.S.L.), PLUS/SLS Loan, and the PHEAA-HELP Alternate Loan are available to part-time students. Interested students must complete the PHEAA/Federal Student Aid Application and the appropriate loan applications in order to apply for these programs. In addition to financial need, eligibility for the Pell Grant program is based on enrollment status. Students registered for at least 6 credits but less than 9 credits qualify for approximately 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. Limited funds from the Supplemental Educational Opportunity Grant (S.E.O.G.) and the Perkins Loan Programs are available to part-time students who demonstrate exceptional financial need.

Financial Aid for Students Seeking a Second Degree

Only the Stafford Loan (G.S.L.), the PLUS/SLS 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 appropriate loan applications must be completed to determine eligibility for these programs.

Wilkes University Scholarships

Founders of Scholarships

Several thousand friends and alumni contribute to the scholarship fund of the University on an annual basis. Many friends have created scholarships which bear the names of the donors or of persons whom they have memorialized by means of a scholarship.

Endowed Named Scholarships

MOHAMAD ABRAHAM SCHOLARSHIP has been created by a gift to the University made by Mohamad Abraham. Its purpose is to assist Palestinian Arabs, or their descendants, to obtain a college education. To qualify, a student must demonstrate the ability to successfully complete the work of the University and must submit evidence of financial need.

THE BALLET SOCIETY OF WYOMING VALLEY SCHOLARSHIP has been established by members of the Ballet Society of Wyoming Valley. Income from this fund provides scholarship assistance to one or more students majoring in the performing arts and showing financial need.

KEVIN EDWARD BARKER MEMORIAL SCHOLARSHIP was created in 1972 in memory of a former student, Kevin Edward Barker, by his family and friends. This fund provides partial scholarship assistance to a graduate of Wyoming Valley West High School in recognition of high academic achievement and involvement in extracurricular activities.

THE GRANT H. BARLOW MEMORIAL SCHOLARSHIP was established in his memory by his wife Marion E. Barlow and his children, Grant and Jennifer. The scholarship is awarded annually to a student demonstrating financial need and pursuing the study of biology and/or chemistry.

ETHEL G. AND ALVAN E. BAUM ART SCHOLARSHIP. A scholarship for a creative art student was established in memory of Ethel G. and Alvan E. Baum by Esther and William Davidowitz and friends. Mrs. Baum was an artist and interior designer. Mr. Baum lived his life as an educator. This scholarship in memory of Mrs. Davidowitz's parents is awarded annually.

THE WILLIAM BERNHARD SCHOLARSHIP was established in memory of William Bernhard, a member of the class of 1983, by his family. The scholarship is available to a deserving student(s) pursuing studies in Business. Priority shall be to ROTC student(s), preferably with interest in becoming a pilot. Other desirable characteristics include participation in extra-curricular activities and good academic standing.

THE GENEVIEVE TODD BRENNAN MEMORIAL SCHOLARSHIP was established by her children in recognition of her service to Wilkes as cafeteria manager from 1938 to 1956. This scholarship provides an annual partial grant for a capable and deserving student who demonstrates promise of success in his or her chosen field.

THE CHARLES N. BURNS, SR., M.D. '35 SCHOLARSHIP is awarded to a junior or senior premedical student who wishes to attend Thomas Jefferson University. The award links Dr. Burns' two Alma Maters and honors his distinguished career as one of Bucknell University Junior College's first physician alumni. Selection of the Burns Scholar is made after an interview with the Vice President for Academic Affairs, the Dean of Health Sciences, and the Dean of Admission.

THE ROBERT S. CAPIN SCHOLARSHIP IN ACCOUNTING was established by former students of Professor Capin, many of whom have become certified public accountants and partners in major firms. The establishment of the fund honors Professor Capin's abilities as a teacher as well as his years of service as President of the University. The fund provides annual assistance for students wishing to pursue the study of accounting.

BRUCE R. CARDON AND CHARLOTTE J. CARDON MEMORIAL SCHOLARSHIP is funded by a trust established for the purpose of providing financial aid to those worthy students seeking such assistance. The allocation of the scholarship shall be at the sole discretion of Wilkes officials.

WALTER S. CARPENTER SCHOLARSHIP IN ENGINEERING is awarded annually to high school seniors planning on majoring in Electrical Engineering, Engineering Management, Environmental Engineering, or Materials Engineering at Wilkes. The recipients of these awards are selected by the faculty of the Engineering Department on the basis of the applicants' high school records and Scholastic Aptitude Test scores, without regard to financial need. Scholarships are renewable annually upon recommendation of the Department of Engineering. Interested students should apply in writing to the Chairman, Department of Engineering. Application deadline is March 15.

THE J. BLANCHARD CARR AND HILDEGARDE FINGER CARR SCHOLARSHIP was established in 1988 for a student majoring in Engineering and demonstrating the qualities of scholarship, good character, and demonstrating financial need.

CLASS OF 1970 SCHOLARSHIP was established by the Class of 1970 to commemorate their 15th anniversary. It will be awarded to a student demonstrating financial need, good character and scholastic aptitude.

CONYNGHAM POST NO. 97, GRAND ARMY OF THE REPUBLIC, DEPARTMENT OF PENNSYLVANIA, SCHOLARSHIP. In 1968 Trustees of Post 97 established a trust at the University, the annual income of which is used to provide partial scholarships for residents of Luzerne County, with preference given to descendants of veterans of the Civil War.

DR. AND MRS. S. M. DAVENPORT SCHOLARSHIP provides partial scholarship assistance to a worthy student enrolled in the medical science field. The scholarship bears the name of Dr. S. M. Davenport, one of the original members of the Wilkes Board of Trustees and former campus physician, and his wife, Mrs. Harriet M. Davenport.

ESTHER AND WILLIAM DAVIDOWITZ SCHOLARSHIP is awarded annually to an outstanding student. The scholarship has been created by Mr. and Mrs. William Davidowitz, long-time friends of the University, who wish to support the endeavors of capable and worthy students.

CHARLES AND SADIE DONIN MEMORIAL SCHOLARSHIP is supported by a substantial endowment created by Mr. Donin. Scholarships are awarded to able and highly motivated students of limited financial means.

THE GEORGE F. ELLIOT MEMORIAL SCHOLARSHIP has been created by faculty, friends, and alumni of the Department of Commerce and Finance in memory of Professor George F. Elliot. Professor Elliot served as a teacher of economics for many years in the Commerce and Finance Department. The award is provided annually to an outstanding student majoring in a field within the Department of Commerce and Finance, preferably economics.

DR. JOHN HENRY ELLIS, IV, SCHOLARSHIP was established with a gift from Dr. John H. Ellis, IV, '79 and awarded to a full-time local student majoring in the sciences who demonstrates financial need.

THE JOHN FANECK '50 SCHOLARSHIP FUND was established by the bequest of Mr. Faneck. The scholarship is awarded annually to one or more students who demonstrate academic ability, good character and financial need.

EUGENE S. AND ELEANOR COATES FARLEY SCHOLARSHIP was created by gifts from friends and family in memory of the first president of Wilkes University and his wife, whose dedication and commitment to Wilkes and the community have contributed so much to the development of both. A partial tuition scholarship is awarded annually to a qualified student active in campus athletic or cultural programs.

THE DAVID R. FENDRICK SCHOLARSHIP was established in 1989 by a memorial gift from his mother. Dr. Fendrick was a professional stage actor and teacher. This scholarship is awarded annually and recognizes an outstanding senior theater arts major with financial need.

THE CHLORA FEY SCHOLARSHIP has been established by members of the former Chlora Fey Console Club in honor of the organization's founder and advisor, the late Miss Chlora Fey, who was a prominent organ and piano teacher in the Hazleton area. Students pursuing the study of organ will be required to present themselves for audition, at which time selected faculty of the Music Department will assess their ability and subsequently select one applicant as the recipient of this partial annual scholarship award.

THE FORTINSKY SCHOLARSHIP was established in 1978 by Robert Fortinsky and is awarded annually to a capable student demonstrating promise and ability.

SIDNEY AND PAULINE FRIEDMAN SCHOLARSHIP was created by a gift from the Friedmans for students majoring in art. Awarded to a highly motivated freshman with financial need.

WILLIAM R. GASBARRO SCHOLARSHIP remembers Professor Gasbarro for his service as Chairman and member of the music department extending over three decades. To be awarded to an undergraduate student(s) of music demonstrating financial need and academic ability.

THE MILDRED GITTINS MEMORIAL SCHOLARSHIP was established by the University in 1983. It recognizes a record of service for four decades by Miss Gittins, who served as manager of the bookstore. This partial scholarship award is provided annually to a student demonstrating scholarship and leadership abilities and financial need.

BRYNLY R. GRIFFITHS SCHOLARSHIP is to be used for the financial aid of deserving students of vocal music.

MARGARET MARY HAGELGANS MEMORIAL SCHOLARSHIP was established by her parents to remember Margaret Mary Hagelgans, a member of the Class of 1986.

KLAUS HOLM SCHOLARSHIP, established by students, colleagues and friends, honors Professor Holm for his artistic achievements and service to theater at Wilkes and beyond. It is awarded to a student in theater arts demonstrating scholastic aptitude and potential in theater production.

ARTHUR J. HOOVER SCHOLARSHIP was established by friends and family in memory of Dean Hoover, a member of the Class of 1955 and the Administration for 31 years. To be awarded to a student demonstrating financial need, good character and scholastic aptitude.

JEWISH WAR VETERANS, WILKES-BARRE POST 212 SCHOLARSHIP is established in honor of B. J. Levin, one of the Post's founders. The purpose of this scholarship is to aid the son or daughter of a local war veteran. The award is made on the basis of need and ability without regard for race or creed.

WILLIAM D. JONATHAN MEMORIAL SCHOLARSHIP has been established by friends of William D. Jonathan in recognition of his selfless courage in the line of duty and his life's interest in improving fiscal management in state and local government. Mr. Jonathan, a senior research associate with the Pennsylvania Economy League for over 20 years and a volunteer firefighter from Nanticoke, Pennsylvania, lost his life in a tragic fire in Nanticoke in December of 1978 as he attempted to save the life of another

firefighter. The award is made annually to a student majoring in political science or economics who has exhibited interest in fiscal management and service to the community.

THE GRACE C. KIMBALL SCHOLARSHIP IN BIOLOGY was created in 1985 in memory of Dr. Grace Kimball, a former faculty member of the Department of Biology. The scholarship is awarded to beginning biology majors who have satisfied qualifying criteria established on a competitive basis by the departmental faculty.

HAROLD J. HARRIS, M.D., AND ANGELINE ELIZABETH KIRBY MEMORIAL HEALTH CENTER SCHOLARSHIP was created in memory of Dr. Harold J. Harris, prominent local physician and longtime president of the Kirby Health Center. This scholarship has been endowed at Wilkes by the Kirby Memorial Health Center and will grant full tuition every other year to a pre-med or nursing student.

KORAL'S FASHION SCHOLARSHIP was established by A. Koral Fashion Inc. and is awarded annually to a deserving student or students from Luzerne County. Preference is given to students pursuing studies in the fields of art and/or business.

THE ESTHER LAMB SCHOLARSHIP was created at Wilkes in 1990 from the Esther Lamb Trust which had been established in 1976. Esther Lamb was a Registered Nurse who was interested in helping poor youth from the local area achieve a medical education. This endowed fund will be awarded to financially needy full-time students from Northeastern Pennsylvania who are enrolled in the premedical program at the University. Selection of recipients will be made by the Dean of admissions, Dean of Health Sciences and Vice President for Development.

THE WILLIAM LANGFELDER SCHOLARSHIP was established in 1986 by his sister, Mrs. Julia Hirsch, to provide scholarship assistance for one or more deserving students. First priority will be to students from Mount Carmel, Pennsylvania, area; second priority to students from Northeastern Pennsylvania.

THE LESLIE FAY COMPANIES SCHOLARSHIP is granted each year to sons or daughters of employees of the company who present outstanding credentials and demonstrate need. Recipients of the scholarship will be selected by the director of Financial Aid of Wilkes University. The scholarship will be retained by the student for the four years in college provided his or her achievement is consistent with University standards, the amount of the scholarship will vary according to the number of recipients in any given year as well as the resources available.

THE ANNE VANKO LIVA SCHOLARSHIP was established by friends and former students of Mrs. Liva in honor of her many contributions to music and to cultural life in Luzerne and Lackawanna Counties. Scholarship(s) will be awarded to an undergraduate majoring in music, with preference given to students specializing in the study of piano.

THE CHARLOTTE V. LORD SCHOLARSHIP was established by colleagues, friends, and students of Dr. Lord in recognition of her unique career in education, in the arts and literature, and for her contributions to the community. The award is made annually to one or more students majoring in the fine arts and humanities.

THE KATHRYN H. MacAVOY SCHOLARSHIP IN NURSING was established in honor of Kathryn H. MacAvoy, a long-time resident of Wilkes-Barre and a member of the nursing profession, by her nephew, Edwin Mailander. The fund provides at least one, but not more than two, partial scholarship grants annually to a student or students from the Greater Wyoming Valley who demonstrate need and capability in the pursuit of the study of nursing.

THE KATHLEEN HARTZELL MAILANDER SCHOLARSHIP IN NURSING was established in memory of Kathleen Hartzell Mailander, a long-time resident of Wilkes-Barre and a member of the nursing profession, by her son, Edwin Mailander. The fund provides at least one but not more than two partial scholarship grants annually to a student or students who demonstrate need and capability in the study of nursing. Preference for recipients of the scholarship shall be given to residents of the Greater Wyoming Valley.

ARNAUD CARTWRIGHT MARTS SCHOLARSHIP was created by the associates of Dr. Arnaud C. Marts, in the firm of Marts & Lundy, to honor the chairman of their company.

As president of Bucknell University, Dr. Marts was instrumental in the establishment of Bucknell University Junior College, which became Wilkes College in 1947. After Wilkes became an independent college, he joined its Board of Trustees and was elected vice-chairman of the Board.

The Arnaud C. Marts Scholarship is awarded each year to the outstanding senior who has need of financial aid and who, by high scholarship and participation in college activities, has demonstrated those qualities of leadership that are needed at Wilkes and in the nation.

FRANCES AND LOUIS MASLOW MEMORIAL SCHOLARSHIP has been established through the generosity of Frances and Louis Maslow, long-time friends and benefactors of Wilkes, and in cooperation with their son, Richard Maslow, a former member of the Wilkes Board of Trustees. The fund provides for scholarship aid to be awarded annually to a worthy student majoring in engineering or business administration.

ROBERT J. McBRIDE MEMORIAL SCHOLARSHIP was established to honor the memory of Robert J. McBride, an athlete at Wilkes. Initial funding of the scholarship came from donations received at the time of his death.

THE RUTH W. AND JOHN T. McHENRY SCHOLARSHIP IN NURSING has been created by faculty, alumni, and friends of the Nursing Department in recognition of the outstanding leadership exhibited by Ruth McHenry in founding the baccalaureate degree program in nursing at Wilkes, and in recognition of the personal encouragement of this effort by her husband, John McHenry. A scholarship grant is awarded annually to a student or students selected by the faculty of the Department of Nursing and the Director of Financial Aid in recognition of demonstrated academic, professional, and leadership abilities in the field of nursing. Particular consideration will be given to students who, in the view of the nursing faculty, are potential leaders for the profession of nursing in the Greater Wyoming Valley area.

THOMAS J. MORAN SCHOLARSHIP IN JOURNALISM. Funded by the Capital Cities/ABC Foundation and The Times Leader, this scholarship honors the career achievements of Thomas J. Moran, President of Luzerne County Community College. The scholarship will be available to qualified students who earn the associate degree or equivalent at LCCC and will pursue the baccalaureate degree at Wilkes. It will also fund a paid internship at The Times Leader to lend practical application of skills in a professional environment.

DR. JAROSLAV G. MORAVEC MEMORIAL SCHOLARSHIP has been established for a student genuinely interested in sociology and anthropology who intends to pursue graduate studies in sociology, anthropology, law, or an allied field. Beginning in 1978-79, this scholarship has been awarded to a student for use during his/her senior year.

MABEL AND JOHN C. MOSTELLER SCHOLARSHIP has been created to provide scholarships for needy and intelligent young men who have insufficient financial resources of their own and who would not have the opportunity to attend college if they were unable to secure financial assistance. The scholarships shall be granted only to young men of good moral character who are in the upper ten percent of their class in academic standing and who have passed a qualifying competitive examination administered by Wilkes University.

THE TAFT ACHILLES ROSENBERG NAPARSTECK SCHOLARSHIP was established by Ruth and Martin Naparsteck, '69, in memory of their son, Taft. Although he died ten days before his second birthday, Taft was already able to do some reading and writing. The scholarship provides assistance for a student who shows promise as a writer of prose fiction, journalism, or poetry. Preference may be given to a veteran of the Viet Nam War or to the son or daughter of a veteran of that war.

THE NESBITT MEMORIAL HOSPITAL SCHOLARSHIP. This program provides a maximum of $2,000 per year in the form of a scholarship/loan to a nursing major and is available for four years. Upon graduation, the student is guaranteed employment at Nesbitt Hospital. Financial support received is forgiven for each year of employment at the hospital. If the graduate does not choose to work at Nesbitt, the aid is repayable as a loan.

THE ELLEN WEBSTER PALMER SCHOLARSHIP was established in memory of Mrs. Palmer, founder of the Boys Industrial Association of Wilkes-Barre. Income from the fund is to be distributed for scholarship purposes. Preference for the award shall be: first, to student(s) whose forebears include one or more "breaker boys" employed in the mining industry; second, to student(s) from Luzerne County; third, to all other Wilkes University students.

THE PEKING CHEF SCHOLARSHIP FOR INTERNATIONAL UNDERSTANDING was established through the efforts of Mr. Eric Lee on the occasion of the tenth anniversary of his Wilkes-Barre restaurant. An award is made annually to a Pennsylvania student for support of a study abroad experience related to the student's academic program at Wilkes University.

PENNSYLVANIA INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS — NORTHEAST CHAPTER has created partial tuition scholarships for accounting students entering the senior year, in recognition of high academic endeavor in the study of accounting.

CRAIG C. PIATT MEMORIAL SCHOLARSHIP was established in 1988 in memory of Craig Piatt, of the class of 1991, a student of business administration and a member of the football team. The scholarship is awarded to a student demonstrating financial need and showing scholastic aptitude.

HENRY BLACKMAN PLUMB AND EDITH PLUMB SCHOLARSHIP has been established to provide scholarships for students of outstanding ability and character majoring in one of the sciences and attending Wilkes University.

KENNETH L. POLLOCK SCHOLARSHIP provides partial scholarships for two seniors from Northwest Area High School who matriculate at the University. The recipients are determined by a selection committee of interested individuals from the Northwest Area. Further information concerning application procedures and eligibility requirements is available from the Director of Guidance, Northwest Area High School.

GEORGE AND HELEN RALSTON SCHOLARSHIP, established by friends and family, honors Dean Ralston for his forty years of service to Wilkes, and Mrs. Ralston, a member of the Class of 1952. To be awarded to a student demonstrating financial need, good character and scholastic aptitude.

THE CHARLES B. REIF SCHOLARSHIP FOR THE BIOLOGICAL SCIENCES was established by former students of Dr. Reif, many of whom are physicians, dentists, researchers, and teachers. The establishment of the fund recognizes his many years of service as professor of biology and chairman of the Biology Department. Scholarships are provided annually for students who wish to pursue the study of the biological sciences.

THE LILLIAN WILKINS RINEHIMER R.N. SCHOLARSHIP. This scholarship, established by her sons, remembers Mrs. Rinehimer who was one of the earliest registered nurses in the Commonwealth of Pennsylvania and served the Wilkes-Barre area for many years as a visiting nurse. Preference shall be to a student demonstrating financial need and scholastic aptitude.

THE DR. SAMUEL A. ROSENBERG MEMORIAL SCHOLARSHIP has been created in memory of Samuel Rosenberg, who served as professor of economics and chairman of the Department of Commerce & Finance at Wilkes for many years. Dr. Rosenberg was respected as teacher, administrator, and labor-relations specialist. His work in the latter field related not only to recognition in the community, but also to distinguished service with agencies of the United States government. The award is provided annually to an outstanding student majoring in a field within the Department of Commerce & Finance.

THE SIDNEY AND THEODORE ROSENBERG SCHOLARSHIP created by Sidney and Theodore Rosenberg of California, provides annual income to be distributed to capable and deserving students who elect to study at Wilkes University.

AMEDEO OBICI AND THOMAS P. SANGIULIANO SCHOLARSHIP is awarded to a member of the sophomore class who is a student in drama with an interest in English classical theater. The recipient must demonstrate financial need as well as an aptitude for scholarship.

THE MR. AND MRS. THOMAS PAUL SANGIULIANO SCHOLARSHIP was established by Mrs. Norma Sangiuliano Tyburski, former Wilkes College Dean of Women, in tribute to her parents and their life-long love of music. This Scholarship is awarded to members of the junior and senior classes who are majoring in music. Recipients must demonstrate an aptitude for scholarship and a high level of performance skills.

ROBERT MARC SCHUB MEMORIAL SCHOLARSHIP was established by Mr. and Mrs. Marvin Schub in memory of their son. This scholarship is to be awarded to a local student, preferably studying in the area of the humanities or sciences, who otherwise could not attend college. The scholarship is awarded annually to a worthy student of high potential.

THE FRANCES D. SHOTWELL MEMORIAL SCHOLARSHIP was established by the bequest of Mrs. Shotwell and by designation by her daughter Sandra H. Shotwell, a member of the Class of 1979. The scholarship will be awarded annually to a student demonstrating financial need and studying music, with preference to a student majoring in voice.

THE SAMUEL H. SHOTWELL MEMORIAL SCHOLARSHIP was established by a bequest of his wife, Frances D. Shotwell. The scholarship is awarded annually to a student demonstrating financial need and pursuing the study of engineering.

THE MARK SLOMOWITZ MEMORIAL SCHOLARSHIP was established by Mr. and Mrs. A. David Fried in memory of their grandson. The scholarship is awarded to a student exhibiting outstanding academic promise and majoring in the social sciences, preferably economics, a field of study which interested Mark.

MERRITT W. AND MARJORY R. SORBER SCHOLARSHIP was established with gifts from the children of Mr. and Mrs. Sorber. First preference shall be to graduates of Northwest Area High School, second to students from Hanover Township High School, third to those from other Luzerne County High Schools.

SURDNA FOUNDATION SCHOLARSHIP was established in 1987 as a result of the Alumni of Wilkes successfully meeting a challenge giving goal offered by the Foundation. To be awarded to a student who demonstrates financial need, good character and academic aptitude and is also the son or daughter of a member of the alumni body.

THE CROMWELL E. THOMAS OUTSTANDING FRESHMAN SCHOLARSHIP was established by friends and former students of Professor Thomas in recognition of his dedicated service to Wilkes as wrestling

coach, member of the faculty, advisor and friend to many students. To be awarded for the sophomore year to the outstanding freshman wrestler as chosen by the coaching staff and Athletic Director.

THE REED P. AND DOROTHY TRAVIS MEMORIAL SCHOLARSHIP was established by family and friends in recognition of their outstanding service to the Wilkes-Barre Area Community. This scholarship provides an annual partial grant for a capable and deserving day student from the Greater Wyoming Valley Area who best exemplifies the unselfish and giving spirit of the late Mr. Travis.

FRANCIS A. UMPHRED MEMORIAL SCHOLARSHIP, established in 1973 by members of the University administration, is awarded to a capable student demonstrating leadership and ability during each academic year.

ESTHER WECKESSER WALKER SCHOLARSHIP was created by Mrs. Walker to assist students of outstanding promise and achievement during their junior and/or senior years.

THE DANIEL S. WILCOX, JR. SCHOLARSHIPS IN ACCOUNTING are awarded annually to high school seniors planning to major in accounting at Wilkes. The Scholarships, established in 1989, are awarded based on the applicants' high school academic record, class rank, scholastic aptitude test scores (SATs), and potential for leadership. Mr. Wilcox, an alumnus, was a noted Wilkes-Barre accountant who was interested in and active with local school boards, the Wilkes-Barre Steam Heat Authority, collegiate athletics and auto racing.

MYVANWY WILLIAMS THEATER SCHOLARSHIP is awarded to a student who has demonstrated outstanding interest and ability in drama.

THE IRA B. ZATCOFF MEMORIAL SCHOLARSHIP was established by Samuel and Joseph Zatcoff, successful businessmen in the Greater Wilkes-Barre area, in memory of their nephew Ira B. Zatcoff, who was a long-time friend of Wilkes. The fund provides an annual grant to assist a capable and deserving student from the Greater Wyoming Valley area, with preference given to the selection of a student interested in business or economics.

EMORY AND MAMIE ZIEGLER SCHOLARSHIP provides a full-tuition scholarship to a deserving member of the Catholic, Jewish, and Protestant faiths who are residents of Wyoming Valley. Selection is made by a special committee of the counseling deans of Wilkes University.

Annual Named Scholarships

THE BOSCOV'S AND ALEXANDER W. DICK FOUNDATION SCHOLARSHIP, established by Albert Boscov, president of Boscov's Department Stores, is awarded annually to assist capable and worthy students. The scholarship is funded through direct contributions from Boscov's Department Stores and grants from the Alexander W. Dick Foundation. Mr. Dick was a founder of Fowler, Dick and Walker Stores, predecessor to the Wilkes-Barre and Hazleton Boscov's Stores. Minimum scholarship awards of $500 will be granted annually to a student or students who demonstrate ability and need. Preference will be given to qualified individuals who are sons or daughters of employees of Boscov's Department Stores. In this case, the parent must have been employed by Boscov's for at least five years and must be employed as of February prior to the fall semester enrollment of the son or daughter. Students wishing consideration for this scholarship must so specify at the Office of Financial Aid.

FRANKLIN FIRST FEDERAL SAVINGS AND LOAN ASSOCIATION OF WILKES-BARRE awards a partial scholarship to a student of scholastic achievement who is active in campus and community activities.

INTERMETRO INDUSTRIES provides scholarship funds for sons or daughters of its employees. To qualify for candidacy, a student must apply through the regular admissions channels of the University and be accepted by Wilkes for full-time enrollment. Interested students should contact the administrative office of InterMetro Industries.

LAVENTHOL & HORWATH SCHOLARSHIP is presented annually to a senior accounting major by the firm of Laventhol & Horwath in recognition of high academic endeavor.

LETTERWOMEN'S CLUB annually awards a partial scholarship to a Letterwoman selected by the organization.

PENNSYLVANIA MILLER'S MUTUAL INSURANCE COMPANY awards a partial tuition scholarship to a student who has demonstrated outstanding ability in studies and in student activities.

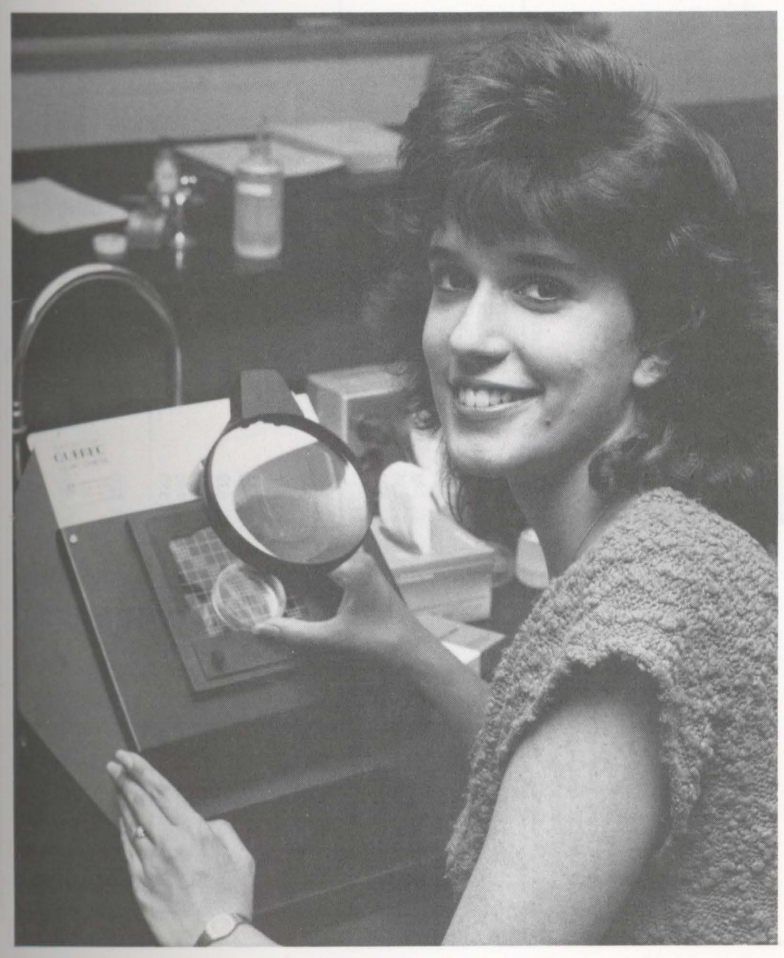
THE POLISH ROOM COMMITTEE SCHOLARSHIP was established in 1972 to express appreciation of services rendered to Wilkes and the community of Northeastern Pennsylvania by Dr. and Mrs. Joseph J. Kocyan. Several scholarships are awarded annually to upperclassmen of Polish descent with exceptionally high cumulative grade point averages. The Director of Financial Aid, Dean of Admissions, and a member of the Scholarship Committee select qualified students and award the scholarships.

PRUDENTIAL BACHE awards a partial tuition scholarship to a worthy junior or senior of outstanding ability majoring in business or finance.

A. RIFKIN AND COMPANY awards a partial tuition scholarship to a worthy young man or woman of outstanding scholastic ability.

WILKES-BARRE ROTARY CLUB SCHOLARSHIP, established in memory of Willits Coleman, a member of the Wilkes-Barre Rotary Club, is awarded to a senior who has demonstrated ability in the classroom and in student activities.

WILKES UNIVERSITY FACULTY WOMEN'S CLUB SCHOLARSHIP is given in memory of Eleanor Coates Farley and awarded annually to a female student in need of financial support.



Summary of Financial Assistance Programs*

Program	Average Annual Award	Application(s) Required	Filing Deadline
		SCHOLARSHIPS	
Trustee Scholarship	$6,979	PHEAA/Federal Student Aid Application and Wilkes Financial Aid Application	Upperclass student deadline — May 1, 1991
Presidential Scholarship	$1,892		Incoming student deadline varies — contact Wilkes Admissions Office
Dean's Scholarship	$ 500		
Achievement Scholarship	$1,139		
Minority Student Scholarship	$2,375		
Leadership Scholarship	$1,536		
Room & Board Scholarship	$3,442		
Wilkes Named Scholarship	$1,146		
Transfer Student Scholarship	$ 669		
ROTC Scholarship	$8,000	Contact the Wilkes ROTC Office	Contact ROTC Office
		GRANTS	
Pell Grant	$1,498	PHEAA/Federal Student Aid Application or CSS's FAF or Federal Student Aid Application	May 1, 1992
PHEAA Grant	$1,756	PHEAA/Federal Student Aid Application	May 1, 1991
SEOG Grant	$ 883	PHEAA/Federal Student Aid Application and Wilkes Financial Aid Application	Upperclass student deadline — May 1, 1991
Wilkes Need-Based Grant	$1,436		Incoming student deadline — Rolling basis as long as funds are available
Wilkes Act 101 Grant	$1,673		
Office of Vocational Rehabilitation Grant	$3,984	Contact the Office of Vocational Rehabilitation	Contact Office of Vocational Rehabilitation
		LOANS	
Carl Perkins Loan (NDSL)	$1,522	PHEAA/Federal Student Aid Application and Wilkes Financial Aid Application	Upperclass student deadline — May 1, 1991
Nursing Student Loan	$2,414		Incoming student deadline — Rolling basis as long as funds are available
Gulf Oil Loan	$ 900		
Rulison Evans Loan	$2,000		
Stafford Loan	$2,632	Stafford Student Loan Application and PHEAA/Federal Student Aid Application	Six to eight weeks prior to need for loan proceeds
PHEAA-HELP Stafford Loan	$2,403		
PLUS/Supplemental Loan	$3,446	PLUS/Supplemental Loan Application	Six to eight weeks prior to need for loan proceeds
PHEAA-HELP Alternate Loan	$4,553	PHEAA-HELP Loan Application	Six to eight weeks prior to need for loan proceeds
		EMPLOYMENT	
Federal College Work-Study Program	$1,500	PHEAA/Federal Student Aid Application, Wilkes Financial Aid Application, and Wilkes Application for Student Employment	Prior to beginning work on campus
State Work-Study Program	$2,000	PHEAA/Federal Student Aid Application, Wilkes Financial Aid Application, and SWSP Work-Study Application	Prior to beginning work on campus
Institutional Employment	$1,200	Wilkes Application for Student Employment	Prior to beginning work on campus

Student Affairs and Athletics

Student Activities and Athletics

Counseling

Other Student Services

Summary of Financial Assistance Programs*

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Wilkes Named Scholarship	$1,146		
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ROTC Scholarship	$8,000	Contact the Wilkes ROTC Office	Contact ROTC Office
		GRANTS	
Pell Grant	$1,498	PHEAA/Federal Student Aid Application or CSS's FAF or Federal Student Aid Application	May 1, 1992
PHEAA Grant	$1,756	PHEAA/Federal Student Aid Application	May 1, 1991
SEOG Grant	$ 883	PHEAA/Federal Student Aid Application and Wilkes Financial Aid Application	Upperclass student deadline — May 1, 1991 Incoming student deadline — Rolling basis as long as funds are available
Wilkes Need-Based Grant	$1,436		
Wilkes Act 101 Grant	$1,673		
Office of Vocational Rehabilitation Grant	$3,984	Contact the Office of Vocational Rehabilitation	Contact Office of Vocational Rehabilitation
		LOANS	
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Gulf Oil Loan	$ 900		
Rulison Evans Loan	$2,000		
Stafford Loan	$2,632	Stafford Student Loan Application and PHEAA/Federal Student Aid Application	Six to eight weeks prior to need for loan proceeds
PHEAA-HELP Stafford Loan	$2,403		
PLUS/Supplemental Loan	$3,446	PLUS/Supplemental Loan Application	Six to eight weeks prior to need for loan proceeds
PHEAA-HELP Alternate Loan	$4,553	PHEAA-HELP Loan Application	Six to eight weeks prior to need for loan proceeds
		EMPLOYMENT	
Federal College Work-Study Program	$1,500	PHEAA/Federal Student Aid Application, Wilkes Financial Aid Application, and Wilkes Application for Student Employment	Prior to beginning work on campus
State Work-Study Program	$2,000	PHEAA/Federal Student Aid Application, Wilkes Financial Aid Application, and SWSP Work-Study Application	Prior to beginning work on campus
Institutional Employment	$1,200	Wilkes Application for Student Employment	Prior to beginning work on campus

Student Affairs and Athletics

Student Activities and Athletics
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Student Affairs

Wilkes University is a community of learning in which extra-curricular activities complement academic life. Students, faculty and staff work together to promote individual development through a variety of activities, programs, organizations and cultural opportunities. All campus organizations are open to all students, and all of them work in close cooperation with faculty advisors and the student affairs staff.

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

Student Activities

An active Student Government and numerous campus clubs and special-interest organizations provide a structure of activities for student life outside of the classroom. An Inter-Residence Hall 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 University.

Students publish the **Beacon**, a weekly newspaper; the **Manuscript**, an annual journal of art, poetry, and fiction; and the **Amnicola**, the University yearbook. The University 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 organization.

Honor Societies

Several chapters of national and international honor societies have been established on the Wilkes campus.

PHI ALPHA THETA, the National History Honor Society, has a chapter at Wilkes University. The local chapter seeks to foster historical awareness by sponsoring programs of scholarly and public interest during the academic year. Membership is open to students who have demonstrated high academic achievement in history.

PSI CHI, the Wilkes University Chapter of the National Honor Society in Psychology, was chartered in 1981. Its purpose is to encourage, stimulate, and maintain excellence in scholarship and research in psychology, thereby advancing the science. PSI CHI is an affiliate of the American Psychological Association and the Association of College Honor Societies. Membership is open to psychology majors and minors who have demonstrated academic excellence, particularly within the field of psychology.

SIGMA PI SIGMA is the National Honor Society in Physics. Its goal is to promote scholarly excellence in and heighten awareness of the field of Physics. Membership in the society is open to students who have demonstrated academic excellence, particularly within the field of Physics.

SIGMA THETA TAU is the international Honor Society in Nursing. ZETA PSI, the Wilkes University Chapter, was officially inducted in 1984. Membership is composed of students in nursing who have demonstrated high scholastic achievement and nurses in the community who have made significant contributions in the areas of nursing service or education.

SIGMA XI, the Scientific Research Society, has established a local affiliate on the Wilkes University 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 professionals, 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 University is a member of the Middle Atlantic Collegiate Athletic Conference (MAC), the Eastern Collegiate Athletic Conference (ECAC), and the National Collegiate Athletic Association (NCAA).

The goal of the intramural program is to provide a comprehensive set of recreational and fitness activities throughout the academic year for the University community. Students, faculty and staff participate in individual, dual and team competitions in the traditional sports as well as in innovative activities like outdoor quad-volleyball, ultimate frisbee tournaments, a home run derby and a non-traditional track meet. Events are organized in full-length seasons, short-term competitions, and one-day special events, using the indoor facilities of the Marts Center as well as the spacious grounds of the Ralston Field Complex.

University 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 University joins area cultural groups each year for the annual Cherry Blossom Festival and for the Fine Arts Fiesta, a four-day festival of music, drama, and the arts

presented each spring. A carefully selected Concert and Lecture series is presented throughout the academic year at Dorothy Dickson Darte Center for the Performing Arts and is open to the campus and to the community without charge, as are regular concerts and recitals.

Student Services

Wilkes 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 student affairs deans, department chairpersons, or academic deans regarding academic matters. Recognizing that students sometimes need additional guidance in resolving personal, social or academic problems, the University has also institutionalized a variety of programs to assist students, individually and in groups.

New-Student Orientation Program

The transition from the directed work of the high school to the independent and more intensive work of the university is eased by introducing new students to the University and its services before classes formally begin. Two orientation periods during the summer and the days preceding the start 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 briefed on the advising system.

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 University and its services. Each freshman is assigned to a freshman advisor during the orientation period and will meet with this advisor regularly to arrange schedules, discuss academic and career plans, and deal with problems or questions as they arise. These faculty advisors add the special expertise of their disciplines to the advising process. If the student has indicated a major at admission, he or she will be advised by a freshman advisor from the relevant department or program, from the start of his or her studies. Students who are undeclared with regard to their major work with their assigned freshman advisor until they decide on their major; they then shift to a departmental advisor.

International Students

The Coordinator for International Students provides immigration and visa information and assistance as well as advice on personal issues. The Coordinator also provides orientation to life in the United States and the American educational system; assists 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 Student Organization. These services are available to all international students, non-immigrants and immigrants alike.

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 University has named advisors in special areas of interest. The Dean of Health Sciences and specially trained pre-medical advisors function as special advisors to all students interested in professional or graduate school opportunities in medical or health-related fields. The Pre-Law Advisors work with students from any discipline who wish to go on to law school. The International Studies Advisors counsel students in matters relating to studying abroad and career and professional opportunities in this field. The Coordinator 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 at the Registrar's Office and the Office of Student Affairs.

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 campus community, and provides general information about campus and community resources. The Dean of Student Affairs is generally familiar with all University services and specifically coordinates the activities of the residence-life staff and the Coordinator of Student Activities as well as the Health Service, Counseling Service, Testing Service, Office of Career Services, Office of Cooperative Education, and Office of Community Service Programs.

Health Service

The Health Service Office is staffed during normal campus hours by a registered nurse and, at specified hours, a physician. Appropriate referrals to area doctors and hospitals are made as necessary.

Counseling Service

The Counseling Service is available to individual students during normal campus 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 Counseling also works closely

with all student groups and University personnel to provide timely workshops and group sessions on areas of interest or concern such as assertiveness training, time management, or health-related topics.

Testing Service

The Testing Center provides its services on referral from academic advisors and student affairs deans. The Testing Service is also available, at no charge, to all current Wilkes students as well as 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 University and potential employers in business, industry, government, and educational institutions. Various services are offered to assist students at all stages of their career development. No appointment is usually necessary and students are encouraged to participate in this service program by registering at the Max Roth Career Center at 215 South Franklin Street.

Typical services of the Office include career counseling, workshops on resume preparation, interviewing skills, and job search strategies. In addition, the Career Services Office provides 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.

Flexibility and planning are essential for choosing a major and determining career goals. A Career Resource Library is available to identify a variety of career options for students in any major, and the Career Services Office exists to help the student effectively negotiate these and other career planning tasks.

Each year Wilkes participates in CAREER DAY, a program sponsored jointly by area colleges during the fall semester. At this event, approximately one hundred organizations send employer representatives to meet with students about available career opportunities. In addition, CAREER EXCHANGE, a program sponsored each spring semester, allows students to meet with Wilkes Alumni and conduct information interviews to facilitate career planning.

Registrants are urged to update their credentials file regularly and to maintain contact with the Office regarding their career activities.

Learning Center

The Learning Center provides free tutorial services in all courses to Wilkes 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 the five-week STEP Program, which is designed to help entering students improve their English, reading and study skills, and prepare for college-level courses in Mathematics, Biology and Chemistry. STEP is the acronym for Success Through Early Preparation.

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 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 university education.

Project Upward Bound

A federal program at Wilkes 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 University 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.

Bookstore

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

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Academic Information

Calendar

The academic year consists of two semesters. The fall semester normally begins in early September and concludes with final examinations in December. The spring semester begins in late-January and closes with a final examination period in May. Commencement exercises are scheduled late in May. A three-week, optional Intersession is offered in January.

The University also provides a broad range of courses in three different summer sessions. The first summer session begins in early 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.

Degree Programs

Wilkes offers undergraduate programs leading to the Bachelor of Arts, Bachelor of Business Administration, 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. Each degree program is designed to achieve particular educational objectives; however, all baccalaureate programs share a set of distinctive goals, which define the Wilkes approach to baccalaureate education. They include:

1. A commitment to high standards of academic achievement and, thereby, to the integrity of the baccalaureate degree.
2. Completion of an extensive core curriculum in the fundamental fields of the arts and sciences.
3. An instructional approach which defines the student as an active participant rather than a passive observer in the classroom, laboratory, and other learning settings.
4. Curricular and programmatic features which help students integrate theoretical understanding with the application of knowledge in professional and community settings.
5. An approach to curriculum which emphasizes principles, ideas, and analytical procedures that cut across and transcend the boundaries of particular disciplines and facilitate life-long learning.
6. Careful, personalized academic and career advisement to ensure that students pursue coherent programs of study and devote appropriate attention to planning for the transition from university to a career or graduate study.

7. Maintenance of an academic environment which is free from *a priori* commitment to particular ideologies or creeds.
8. Articulation and pursuit of the highest standards of personal integrity and professional responsibility.

The Curriculum

The Wilkes Curriculum has three components. The first is the Core Curriculum, which provides a common foundation in the arts and sciences for all Bachelor's degrees awarded by the University.

The second component is the major. This component provides for in-depth study of a field of specialization. The requirements for each major offered are found under the departmental listings.

The third component, elective courses, enables students to pursue personal interests, to explore new areas of learning, or to complete a minor or a second major.

The Core Curriculum: The First Curricular Component

The Core/General Education Requirements are an affirmation of the strong belief of the Wilkes Faculty in the value of study in the arts and sciences for all students. The Core is intended to serve as a foundation on which all degree programs are based and includes a broad spectrum of courses designed to stimulate the student's intellectual, personal, social, and physical development.

The 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 Core Studies I, 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** degree requirements, including the Core Requirements, are satisfied.

Core Curriculum

Skill Requirements

I. **Written Expression**

1. English Composition . . . . . .0-6 credits

Students are assigned to an appropriate composition course, based on the results of a writing sample completed at the time of the student's initial registration. Advanced Placement test grades are taken into account in placement decisions.

2. Writing Intensive Courses

Each student must complete three courses which appear on the "Writ-

ing Intensive List," which is available in the Registrar's Office and the Department of English. Writing Intensive courses are offered in nearly all fields. Satisfaction of this requirement will not add credits to most students' programs.

II. **Oral Expression**

1. Completion of COM 101, 144A, 201, 203, 204, 205, 206, or 207.

   OR

2. Completion of two Oral Presentation Option (OPO) experiences. The Registrar's Office maintains a list of OPO courses. OPO courses enable a specified number of students (or all students) in the course in a semester to complete an approved Oral Presentation experience. Students make arrangements with the instructor of an OPO course to deliver the number of in-class oral presentations required for completion of the oral presentation requirement of that course. The instructor notifies the Registrar of the names of students in his or her OPO course who have successfully completed the course on an OPO basis.

III. **Computer Literacy**

1. Completion of any credit course in computer science.

   OR

2. A grade of 3, 4, or 5 on the Advanced Placement test in computer science or a CLEP test grade in the 50th or higher percentile.

   OR

3. Exemption of the requirement through a demonstration of competence in computing by means of assessments administered by the Department of Mathematics and Computer Science.

IV. **Mathematics**

1. A score of 475 or higher on the mathematics section of the Scholastic Aptitude Test (or the equivalent).

   OR

2. A passing score on the mathematics placement test administered at the time of the student's initial registration.

   OR

3. Completion of a credit bearing course in mathematics.

V. **Foreign Language**

1. Demonstration, by means of a foreign language placement test administered at the time of the student's initial registration, of a level of language skill equivalent to the level expected of students who have completed a 102 (or equivalent) college foreign language course. Tests are administered by the Department of Foreign Languages and Literature and are available in French, Spanish, and German, and by special arrangement, in a variety of other languages.

   OR

2. Completion of a foreign language course at the 102 or higher level.

Note: Students who graduated from secondary schools at which the primary language of instruction was **not** English satisfy the foreign language requirement by submission of a TOEFL score adequate for admission to Wilkes.

VI. **Collegiate Academic Life** . . . . . .0-1 credit

All entering students are required to complete CST 101, Core Studies I, which provides an introduction to the academic skills required for success in college. This course must be completed during the student's initial semester. Students who do not successfully complete Core Studies I during the initial semester of registration are automatically registered for CST 101 for the succeeding semester(s) of their enrollment.

Students who transfer 15 or more college credits to Wilkes at the time of their initial registration may elect to exempt Core Studies I with credit awarded.

VII. **Physical Fitness**

All students who are physically able are required to participate in a physical education experience for two semesters, including one course designed as a "wellness" course. No academic credit is awarded.

Distribution Requirements . . . . . .30/39 credits

All students must complete at least 30 credits of work in the distribution areas listed below. Students majoring in disciplines (Engineering and Music majors) which include 75 or more credits beyond the courses included in or used to satisfy core requirements may choose the lower number of credits in each **distribution area**; all other students must complete the higher number of credits in each **area**. All students are eligible, depending on placement in some cases, to select within the credit ranges indicated for the various sub-areas which are components of a distribution area. All students must complete the minimum number of credits shown for each sub-area.

Each student's selection of distribution courses must include at least one CST (Core Studies) course in an area other than the area which includes the student's major field. No more than two CST courses may be used to fulfill distribution requirements.

Area I: Culture and Value . . . . . .12/15 credits

[Courses selected must include at least one course which deals with a society other than the United States.]

– Culture . . . . . .3-6 credits
  Course options: HST 101, 102, 207, 208

– Literature . . . . . .3-6 credits
  Course options: ENG 150, 151, 152, 153

– Thought. . . . . .3-6 credits
  Course options: PHL 101, 152, 210, 216, 220, and 230

– Foreign Language and Culture . . . . . .0-3 credits
  Course options: ANT 352, 353
  EC 227, 228
  FOREIGN LANGUAGE 102 (if the language is other than the language used to satisfy the foreign language admission requirement)
  FR, GR, RUS, SP 203, 204, 205, 208, 298
  HST 348, 361, 362, 363, 367

– Core Studies in Culture and Value . . . . . .0-6 credits
  Course options: CST 201

Area II: The Scientific World . . . . . .9/12 credits

— Mathematics/Computer Science . . . . . .0-3 credits
Course options: MTH 101, 102, 105, 106, 111, 112, 150
CS 115, 123

— Science . . . . . .6-12 credits
[Selections must include two different fields and one course with a laboratory component.]
Course options: BIO 105, 106, 107, 108, 113, 115, 116, 121, 122
CHM 101, 102, 111, 115, 116, 130
EES 110, 115, 120, 125, 130, 211, 230, 240, 251, 280
PHY 101, 102, 105, 106, 201, 202, 203

— Core Studies in Science and Technology . . . . . .0-3 credits
Course option: CST 202

Area III: Society and Human Behavior . . . . . .6/9 credits

— Social Sciences . . . . . .3-9 credits
[No more than three credits in any one field.]
Course options: ANT 101, 270
EC 101, 102
PS 102, 105, 202
PSY 101
SOC 101, 200, 230, 235, 391, 392

— Core Studies in Society and Human Behavior . . . . . .0-3 credits
Course option: CST 203

Area IV: Artistic Expression . . . . . .3 credits

— Creative and Performing Arts . . . . . .0-3 credits
Course options: ART 101, 103, 104, 105, 115, 116
MUS 101, 102, (or any 3 credits in music performance)
THE 140

— Core Studies in Artistic Expression . . . . . .0-3 credits
Course option: CST 204

Honors in Core Curricular Studies

The Honors Program in Core Curricular Studies is designed for exceptionally talented and strongly motivated students. Successful applicants (for qualifications and application procedures, contact the Admissions Office), who are designated University Scholars, participate in enriched academic and extra-curricular programs which foster creativity, independence, and responsibility.

University Scholars have the option of enrolling in an honors section of the freshman experience course, Core Studies 101. To earn a core honors designation upon graduation, University Scholars need to complete four core courses on an honors basis. They can fulfill this requirement by enrolling in either core courses designated honors options sections or in special honors seminar sections of the core. University Scholars supplement their enriched academic experience by participating in the meetings and cultural excursions of the University Honors Society.

Selection of a Major: The Second Curricular Component

Each student must complete a major in a discipline or area of concentration in order to graduate. Specific requirements for each major are described in detail in the departmental listing in this Bulletin. The major must be declared prior to the first semester of the student's junior year.

Bachelor of Arts Degree — Majors

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

Applied and Engineering Sciences
Art
Biochemistry
Biology
Chemistry
Communications
Computer Science
Earth and Environmental Sciences
Economics
Elementary Education
English
French
German
History
Individualized Studies
International Studies
Mathematics
Philosophy
Physics
Political Science
Psychology
Sociology
Spanish
Theater Arts

Bachelor of Science Degree — Majors

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

Accounting
Biochemistry
Biology
Business Administration
Chemistry
Computer Information Systems
Computer Science
Earth and Environmental Sciences
Electrical Engineering
Engineering Management
Environmental Engineering
Individualized Studies
Materials Engineering
Mathematics
Mechanical Engineering
Medical Technology
Nursing
Physics

Bachelor of Business Administration Degree — Business Major

Bachelor of Fine Arts Degree — Art Major

Bachelor of Music Degree — Majors in Performance and Music Education

Teacher Education

Students who wish to prepare for a teaching career in secondary schools select an appropriate disciplinary major and use their elective credits to meet teacher-certification requirements. Music Education majors must complete all components of the program and secure the approval of the faculty of the Department of Music, Theater and Dance. Students who wish to prepare for a teaching career in elementary education select an appropriate disciplinary major and major in elementary education. 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 must seek counseling in the Education Department early in their first semester.

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.

Selection of a Minor

One of the common reasons students select elective courses is to complete a minor in a field other than the student's major field. 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. Students must complete a minimum of one-half of their minor field credits in Wilkes University courses for the minor to be formally recognized on the Wilkes transcript.

Cooperative Education

Program

Cooperative Education, another possible use of elective credits, is a program that formally integrates a student's studies with 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 Coordinator of Cooperative Education as soon as possible after their arrival on campus.

Procedure

1. Student visits Cooperative Education Office to discuss career goals and placement options during pre-registration for the semester/session in which the co-op is desired.
2. Student obtains approval signature of academic advisor on Cooperative Education Form.
3. Resumes are sent to co-op employers and interviews are arranged.

4. Upon mutual agreement of student and employer, student obtains a placement. The signatures of the Cooperative Education Coordinator, Faculty Advisor, and Chairperson of the Department performing academic evaluation of the student must be obtained on the Cooperative Education Placement Confirmation Form. A job description must be furnished to the Department Chairperson at this time. The Department Chairperson will approve appropriate placement for academic credit and indicate the number of credits and departmental elective(s) and/or cooperative education elective(s) for which the student may register.
5. The Department Chairperson assigns a faculty coordinator to counsel, evaluate, and grade the student's performance during the placement.
6. The student takes the Placement Confirmation Form to the Registrar's Office and officially registers for academic credit for the cooperative education experience.
7. Student attends Pre-employment Seminar and begins the placement under the guidance and supervision of a Faculty Coordinator.

Study Abroad

Program

The Study Abroad Program, a part of the International Studies major and an 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. Overseas study may be for a period of a year, a semester, or a summer. 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 Advisor in the Department of Foreign Languages.

Procedure

1. In consultation with the Study Abroad Coordinator and the Academic Advisor, the student selects an approved and accredited study abroad program and makes a preliminary selection of courses. The student obtains a Transfer of Credit Form for submission in step 4 below.
2. The student applies for acceptance to the approved study abroad program.
3. Student obtains the necessary signatures for completion of the Transfer of Credit Form and submits it to the Registrar's Office.
4. If a student wishes to use financial aid to help meet the educational cost associated with study abroad, the student must complete a Wilkes Consortium Agreement in addition to the regular financial aid applications. Only Pell Grants, State Grants, Stafford Loans and/or PLUS/SLS Loans are available to students during the study abroad semester. It is recommended that students wishing to use financial aid meet with the Director of Financial Aid to review the proper procedure for obtaining funds.
5. Costs such as tuition, room, board, or travel are paid by the student to the study abroad institution.

6. The student registers for I.S. 398 at Wilkes for the period at the study abroad institution, incurring an administrative fee.
7. The student ensures that an official transcript of his or her earned academic credit at the study abroad institution is sent to the Wilkes University Registrar's Office.
8. Within one month of completing the study abroad courses or upon return to campus, it is the student's responsibility to meet with the Study Abroad Coordinator to confirm receipt and recording by the Registrar's Office of authorized and completed study abroad credit.

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 chairperson 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 beyond those required for the first degree.

A candidate for a second degree must complete all requirements for the degree at Wilkes. 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 chairperson of the proposed major department.

Adult, Graduate and Continuing Education

Part-time Studies

The University welcomes part-time undergraduate students into all of its regular sessions. It has also established the Evening and Weekend Programs to maximize scheduling possibilities for students who cannot attend day classes. Majors in several disciplines are offered in the evening and on weekends, and students may utilize both options, in addition to day-classes, 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 all of these programs should be directed to the Office of Evening, Weekend, and Summer Programs.

Evening Program

The Evening Program is designed to meet the needs of those students who cannot attend daytime classes but wish to pursue a degree. Courses meet one or two nights per week during the academic year and three nights per week during the eight-week evening summer session. Majors in the following fields are provided in the evening: Accounting, Business Administration, Computer Information Systems, Earth and Environmental Sciences, Electrical Engineering, Engineering Management, Environmental Engineering, History, Materials Engineering, and Physics. Students interested in evening courses should contact the Evening, Weekend, and Summer Office to plan their courses of study.

Weekend Program

Wilkes's Weekend Program provides upper-division courses on the campus of Keystone Junior College in La Plume, Pennsylvania, enabling graduates of Keystone Junior College and other accredited two-year institutions to complete bachelor's degrees in certain majors by taking courses only on weekends. Majors available in the Weekend Program include Accounting, Business Administration, Economics, Psychology, and Sociology. Students beginning as freshmen in the Weekend Program apply for admission to Keystone Junior College.

The courses meet every third weekend on the Keystone College campus, which is ten 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. Inquiries about the Weekend College should be directed to the Office of Evening, Weekend, and Summer Programs.

Summer Programs

Wilkes offers a variety of summer courses, workshops, mini-courses, and programs with outdoor activities during the summer months. The summer schedule includes two five-week daytime sessions and an eight-week evening session. Students interested in the Summer Programs should contact the Evening, Weekend, and Summer Programs Office for specific information.

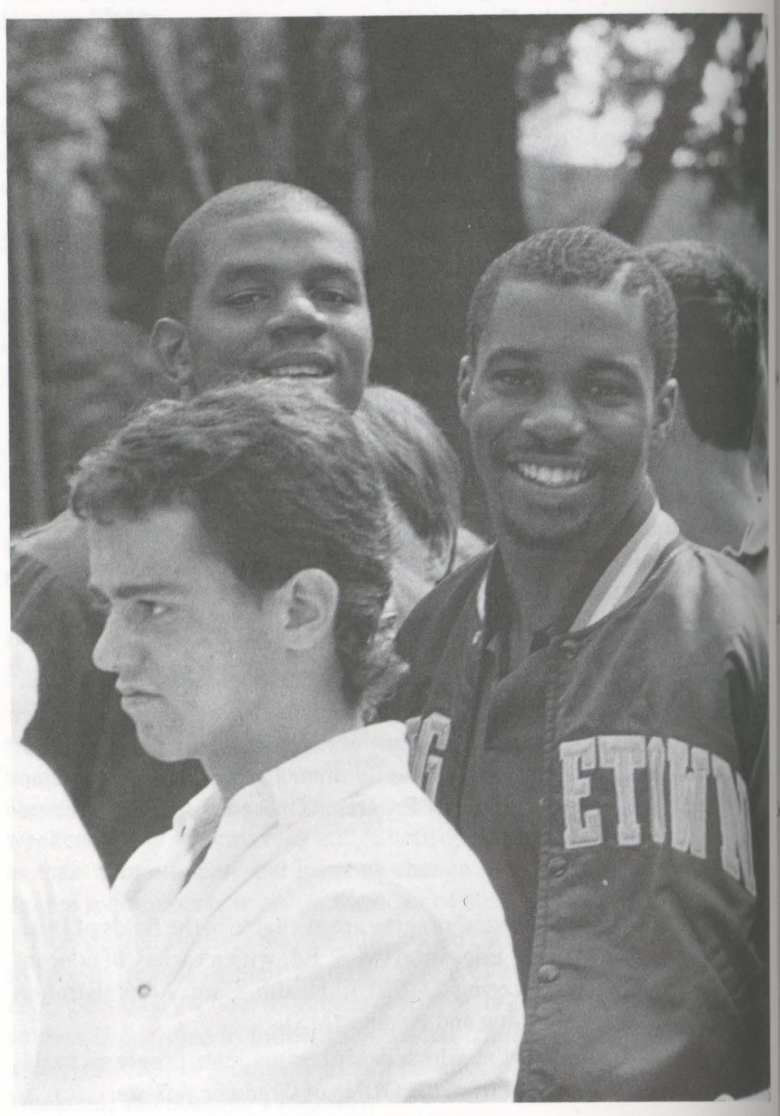
Graduate Studies

Programs leading to the master's degree are available in the fields of Business Administration (MBA), Education (M.S. Ed, with a variety of concentrations), Electrical Engineering (MSEE), Health Care Administration (MHA), Mathematics, Nursing and Physics (MS).

A separate Graduate Bulletin, which describes graduate programs in detail, is available upon request from the Office of Graduate Affairs.

Continuing Education

In addition to courses for credit, Wilkes provides a non-degree Continuing Education program to respond to the needs and interests of the community. This program includes training for business, industry, government, associations, social service agencies, and individuals, through the use of public seminars, in-house presentations and conferences. Inquiries about offerings of the Continuing Education Office should be addressed to the Division of Graduate Affairs and Continuing Education.



Academic Policies and Procedures

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 University Calendar. Additional information on registration procedures and the exact dates of the orientation sessions can be obtained from the Office of Admissions or the Registrar's Office.

Attendance

Attendance at all classes is expected and required. Repeated absences are a sufficient cause for failure.

Student Load

Students may register for as many as 18 credits in a semester. No student shall be allowed to carry more than 18 credits without the written approval of his or her advisor. An overload will be permitted only for students with a grade point average of 3.00 or higher.

Wilkes/King's Cross-Registration

Wilkes University and King's College offer their students an opportunity to cross-register for courses at either institution. Students register through the Registrar at the institution at which they are enrolled as degree candidates. Interested students should confer with the Registrar for further details.

Auditing Courses

Auditing courses is a practice designed primarily to allow students to expand their educational opportunities. 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 change their majors must obtain the approval of the advisor and the department chairperson. The student shall satisfy the curric-

ulum requirements of the Bulletin in force at the time of the change. Change-of-major forms are available in the Registrar's Office.

Transfer of Credits

Wilkes students who wish to take courses at another accredited institution (except King's College) must have completed the Transfer of Credit form, available at the Registrar's Office. The student must earn a grade of 2.00 or higher for the work to be credited toward graduation. All students must complete at least 30 credits in residence at Wilkes.

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

Withdrawals

A student may withdraw from a course during the first three weeks of the semester by informing the instructor, completing a withdrawal form which is co-signed by the student and the student's advisor, and returning the signed form to the Registrar's Office within the first three weeks of the semester. A student may withdraw from a course from the end of the third week through the eighth week of the semester only with the approval of both the instructor and the student's advisor. Thereafter, a student may withdraw from a course only for medical reasons, supported by a written excuse from a physician, or other extremely serious circumstances, as determined by the dean of the school in which the course is being taught, in consultation with the instructor and the Dean of Student Affairs.

It is the student's responsibility to initiate withdrawal from a course by obtaining the withdrawal form from the Registrar's Office, having it signed by the appropriate personnel, and returning it to the Registrar's Office within the three- or eight-week periods described above. **A grade of "0" is assigned by the instructor and recorded for all courses in which no official withdrawal has been completed by the student.**

For a thorough discussion of this policy, refer to the **Wilkes University Student Handbook.**

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 of their evaluative records which have been established by Wilkes University, with at least one day's advance notice to the office responsible for the records to which the student seeks access.

Academic Requirements

Grades

The primary purpose of any grading system is to inform the student of his or her academic progress. Grade reports are sent to students at the end of each term. Mid-term reports are sent **if the work completed 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 or the grade becomes zero, unless a special extension has been approved by the Registrar.

Course Credits and Grade Point Average

Each course at the University 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.

Below is an example illustrating the method used to compute grade point averages.

Course	Credit Hrs. Attempted		Grade		Quality 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 attempted 15
Total credit hours passed 12
Total quality points earned 33
Average 33 q.p. ÷ 15 hrs. attempted = 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.

Academic Honors

The faculty grants recognition for high quality work. To be on the Deans' List, published at the end of each term, a student must earn a semester grade point average of 3.40 or higher for all courses taken. Students taking fewer than twelve credit hours will not be eligible.

Academic Probation and Ineligibility

Freshmen, defined as students who have completed fewer than thirty-six credits, must maintain a 1.70 cumulative grade point average. All other students must maintain a minimum 2.00 in both their major and cumulative grade point averages. A student who falls below the minimum average required will *automatically* be placed on academic probation. Probation is a warning to the student that he or she is not making satisfactory progress towards a degree. At the end of the first semester, a student whose grade point average is less than 0.5 may be declared academically ineligible to continue.

Students placed on academic probation may be restricted in the number of credits they take the following semester, based on the recommendation of the student's academic advisor and such action by the Academic Standards Committee. The Committee may impose additional restrictions and requirements in individual cases, if it is determined that such restrictions and requirements are in the best interest of the student. Such restrictions may affect the student's participation in extracurricular activities.

Students who remain on academic probation for two consecutive semesters are subject to designation as academically ineligible to continue at Wilkes.

Students who have been declared academically ineligible are not allowed to enroll in any course work at Wilkes for a period of one semester. To be considered for readmission such students need to apply to the Student Affairs and Registrar's Offices and be approved for readmission on a probationary status by the Chairperson of the Department in which the student has a declared major. If the student has not declared a major, readmission must be recommended by the Dean of Student Affairs. Students applying for readmission must present evidence of enhanced prospects for academic success. All readmissions must be reported to the Academic Standards Committee for final approval.

A decision of the Academic Standards Committee may be appealed by the student at the designated meeting for appeals at the conclusion of the fall and spring semesters. Appeals must be presented to the Committee either in person or by letter at the appropriate appeals meeting, and should include good and sufficient reasons for appealing.

Academic Honesty

Academic honesty requires students to refrain from cheating and to provide clear citations for assertions of fact as well as for the language, ideas and interpretations of others that have contributed to their written work. Failure to acknowledge indebtedness to the work of others constitutes plagiarism, a serious academic offense that cannot be tolerated in a community of scholars. All instances of academic fraud will be addressed in accordance with the policies of the University.

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 a student must satisfy in order to be eligible for graduation:

1. Complete a *minimum* of 121 credit hours.
2. Satisfy all requirements in the 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. 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.
4. Achieve a minimum cumulative average of 2.00 for all courses.
5. Achieve a minimum cumulative average of 2.00 for all subjects within their major.
6. Achieve a minimum cumulative average of 2.00 for all subjects within the chosen minor(s).
7. Satisfy all requirements of the physical education program.
8. Demonstrate competence in written and spoken English.
9. Satisfy mathematics and computer literacy and other core curricular skills and knowledge requirements by participation in assessment procedures.

No student shall be graduated until all financial obligations to the University have been fulfilled.

Degree 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, with the cumulative average equal to the honors received to be considered for honors. The entire academic record, including grades earned at Wilkes and any other institution attended, affects the final cumulative average for honors.

Requirements for Degree Honors are:

Summa Cum Laude	3.80
Magna Cum Laude	3.60
Cum Laude	3.40

Academic Structure

The School of Business, Society and Public Policy

Departments
Accounting
Business Administration and Economics
Health Care Administration
Political Science and Public Administration
Sociology and Anthropology

The School of Liberal Arts and Human Sciences

Departments
Art
Communications
Education
English
History
Foreign Languages
Music, Theater and Dance
Nursing
Philosophy
Physical Education
Psychology

The School of Science and Engineering

Departments
Aerospace Studies
Biology
Chemistry
Earth and Environmental Sciences
Engineering
Mathematics and Computer Science
Physics

University-wide Core Studies Courses

The School of Business, Society, and Public Policy

Theodore J. Engel, M.A.
Dean of the School

The School of Business, Society, and Public Policy offers a number of programs leading to a Bachelor of Business Administration degree, a Bachelor of Science degree in Accounting, and a Bachelor of Arts degree in Economics, International Studies, Political Science, or Sociology. Minors in all areas also are available.

The unifying concept linking all the various academic programs in the School is the intellectual commitment to the study and analysis of human interaction within the framework or context of a business organization, society, political body, family, or other collective entity. These programs prepare students for professional and leadership positions in business, industry, higher education, social service agencies, government, and nonprofit organizations of many types, as well as professional licensings, graduate education, and professional schools. Interdisciplinary ventures, such as the Computer Information Systems and Engineering Management programs, provide opportunities for students to create individualized educational experiences. The Pre-Law and International Studies programs also are components of the School. At the graduate level, the School offers the Master of Business Administration and Master of Health Administration degrees.

The School includes the following departments:

Accounting
Business and Economics
Health Care Administration
Political Science/Public Administration
Sociology/Anthropology

ACCOUNTING

Associate Professor Chisarick, Chairperson; Professor Capin; Associate Professor Broadt; Assistant Professors Rexer, Sosik.

Total minimum number of credits required for a major in Accounting leading to the B.S. degree — 126.
Total minimum number of credits required for a minor — 24.

The School of Business, Society, and Public Policy 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 compete successfully for placement in graduate and professional schools, and licensures as certified public accountants and/or certified management accountants. Those choosing a career in administration receive the managerial training necessary for success in a full range of leadership roles.

The accounting curriculum parallels that of business administration and consists of three tiers or levels. It begins with a comprehensive study of the arts, sciences, mathematics, communications, and humanities. This liberal arts core, which is a common experience to all majors, provides the basis for a broadly educated individual. The second level of educational experience provides a 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 also is available. Students with the classroom background described may participate in a practical experience through an accounting internship. Most students are placed with public accounting firms where it is possible to experience a broad range of business problems in a short time-span. However, for students with a more specialized interest, accounting internships are also available in banking, industry, and with the government. The internship program has been available at Wilkes for the past thirty years, and most qualifying applicants have been placed in positions of their choice, including the large international accounting firms.

The accounting curriculum is a demanding and comprehensive educational experience. It 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 educationally qualified to meet every state's legal requirements for the certified public accountant examination.

Students from 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 background to begin with professional entry-level employment while developing a background in his chosen field of study. The minor program is composed of Acc 121-122, Acc 211-212, and twelve additional credits in accounting.

Accounting alumni can be found in firms ranging in size from those of individual practitioners to international organizations. Many of our graduates who began their careers with such firms have since moved into leadership positions with government or private industry. The accounting major in the School of Business, Society, and Public Policy at Wilkes University will provide an individual with the combined educational skills to be a future success as a leader in the accounting profession, industry, or government.

Recommended Course Sequence for a Major in Accounting

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Core Requirements	9	CS 115 Survey of Computers	3
Mth 101*	3	Core Requirements	6
CST 101 Core Studies I	1	Mth 102*	3
PE 100 Activity	0	PE 100 Activity	0
	16		15
Third Semester		**Fourth Semester**	
Acc 121 Financial Accounting	3	Acc 122 Managerial Accounting	3
Ec 101 Economics I (Core Course)	3	Ec 102 Economics II	3
COM 101 Public Speaking or COM 206	3	Core Requirements	6
Core Requirements	9	Free Elective	3
	18		15
Fifth Semester		**Sixth Semester**	
Acc 211 Intermediate Acc I	3	Acc 212 Intermediate Acc II	3
Acc 221 Taxes	3	Acc 224 Advanced Taxes**	3
Ec 231 Statistics I	3	Ec 232 Statistics II	3
BA 209 Business Correspondence	3	BA 226 Investments	3
BA 225 Finance	3	BA 234 Law and Ethics	3
BA 233 Legal Environment	3	Free Elective	3
	18		18
Seventh Semester		**Eighth Semester**	
Acc 231 Auditing	3	Acc 234 Accounting Systems**	3
Acc 233 Cost Accounting	3	Acc 244 Advanced Accounting	3
Acc 251 Senior Seminar** (prerequisite for Acc 252)	3	Acc 252 Internship**	3
		Free Elective	3
Ec 201 Money and Banking	3		
BA 351 Management	3		
	15		12

*Mth 101 and 102 or a higher sequence required of all accounting majors.
**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.
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.
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 **Three credits**
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 211.

ACC 221. TAXES **Three credits**
The preparation of federal income tax returns for individuals and businesses based on the current 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.

ACC 224. ADVANCED TAXES **Three credits**
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.

ACC 252. ACCOUNTING INTERNSHIP **Three credits**
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 300-level course in the School of Business and Economics. (All courses listed through the seventh semester should be taken prior to this course.)

ACC 395-396. INDEPENDENT RESEARCH **One to three credits**

ACC 397. SEMINAR **One to three credits**

ACC 198/298/398. TOPICS **Variable credit**
Special offerings designed to introduce students to subjects of current interest in accounting which are not covered in other courses.

ANTHROPOLOGY

Associate Professor Natzke, Chairperson; Associate Professor Merryman.

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 98 and 108). 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: $25.

ANT 270. CULTURAL ANTHROPOLOGY **Three credits**
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 **Three credits**
The prehistoric development and recent life-ways of native Americans.

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

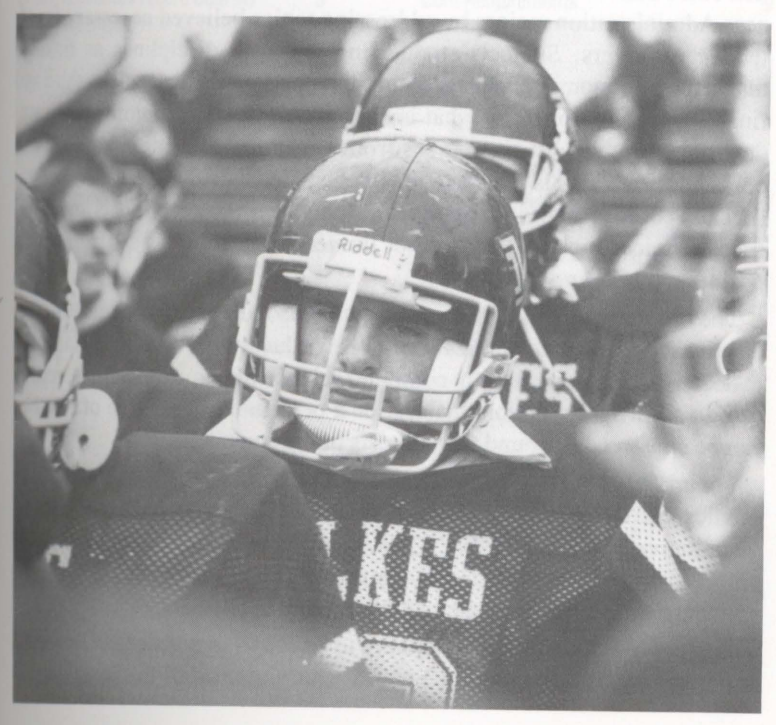
ANT 392. SOCIOCULTURAL CHANGE **Three credits**
A systematic evaluation of various attempts by social scientists to document and explain the phenomenon of change. A comprehensive survey of the field is presented through selected readings and discussion of major studies from sociology, cultural anthropology, and archaeology.
Prerequisite: Soc 101 or Ant 101, or approval of instructor.

ANT 395-396. INDEPENDENT RESEARCH **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.

ANT 397. SEMINAR **Three credits**
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.

ANT 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)
Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.



BUSINESS ADMINISTRATION

Associate Professor Peper, Chairperson; Professors Emeritus Farrar, Gera; Associate Professors Batory, Engel, Liuzzo, O'Hop, Raspen, Schwartz, Seeley; Assistant Professors Loftus, Penugonda, Rodin.

Total minimum number of credits required for a major in Business Administration leading to the B.B.A. degree — 127.
Total minimum number of credits required for a minor — 24.

The Department of Business and Economics offers a major in Business Administration with a variety of tracks leading to executive careers in business, industry, and government. Students interested in pursuing graduate degrees, attending professional schools, or seeking professional license will find that the 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 Business Administration majors by addressing topics believed necessary for effective managers. 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 at least 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, but are not limited to, 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 Department of Business and Economics 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 their other academic interests.

Business administration alumni are to be found in positions of leadership 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 Business Administration Program at Wilkes will prepare them admirably for their demanding future.

Recommended Course Sequence for a Major in Business Administration

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Core Requirements	6	Core Requirements	6
CST 101 Core Studies I	1	Mth 102 Fundamentals*	3
Mth 101 Fundamentals*	3	COM 101 Public Speaking or COM 206	3
CS 115 Survey of Computers	3	PE 100 Activity	0
PE 100 Activity	0		15
	16		

Third Semester		Fourth Semester	
Acc 121 Accounting I	3	Acc 122 Accounting II	3
BA 233 Legal Environment	3	Ec 102 Economics II	3
Ec 101 Economics I (Core Course)	3	Core Requirements	9
Core Requirements	6		15
	15		

Fifth Semester		Sixth Semester	
BA 209 Business Correspondence	3	BA 222 Marketing	3
BA 351 Management	3	BA 352 Operations Management	3
Ec 201 Money and Banking	3	or BA 354 Organizational Design	
Ec 231 Statistics I	3	Ec 232 Statistics II	3
Core Requirement	3	Core Requirement	3
Free Elective	3	Free Elective	3
	18		15

Seventh Semester		Eighth Semester	
BA 225 Finance	3	BA 360 Business Policy and	3
Concentration Electives	9	Decision-Making Seminar	
Free Electives	6	Concentration Electives	9
		Free Elective	3
	18		15

*Or a higher sequence.

B.A. CONCENTRATIONS

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

BANKING AND FINANCE

A **Minimum** of 4 courses or 12 credits from the following courses:

Acc 221 Taxes
BA 226 Investments
BA 240 Property Insurance
BA 325 Seminar on International Business
BA 395-396 Independent Research
BA 398 Topics
Ec 236 Public Finance
Ec 241 Microeconomics I
Mth 105 Introductory Calculus I
Mth 106 Introductory Calculus II

And any **Two** of the following courses for a **Maximum** of 6 credits:

BA 220 Real Estate
BA 241 Life Insurance
Ec 224 Economic Development
Ec 225 International Trade
Ec 251 Macroeconomics I
Ec 252 Macroeconomics II
PS 316 Government Budgeting
COM 206 Business and Professional Speaking

ECONOMICS

A **Minimum** of 4 courses or 12 credits from the following courses:

Ec 220 Labor Economics
Ec 223 Collective Bargaining
Ec 224 Economic Development
Ec 225 International Trade and Finance
Ec 229 Comparative Economic Systems
Ec 236 Public Finance
Ec 241 Microeconomics I
Ec 251 Macroeconomics I
Ec 398 Topics
Mth 105 Introductory Calculus I
Mth 106 Introductory Calculus II

And any **Two** of the following courses for a **Maximum** of 6 credits:

BA 212 Government and Business
Ec 227 Economic Geography of North America, Europe, and the Soviet Union
Ec 228 Economic Geography of Asia, Africa, and Latin America
Ec 230 Business Cycles
Ec 242 Microeconomics II
Ec 245 Consumer Economics
Ec 252 Macroeconomics II
Ec 395-396 Independent Research
Ec 397 Seminar

MANAGEMENT AND INDUSTRIAL RELATIONS

A **Minimum** of 4 courses or 12 credits from the following courses:

BA 227 Logistics and Distribution Management
BA 256 Business and Society
BA 271 Human Resources Management
BA 325 International Business Management
BA 352 Operations and System Management **or**
BA 354 Organizational Design and Behavior*
BA 395-396 Independent Research
BA 398 Topics
Mth 262 Operations Research
COM 202 Interpersonal Communication
COM 206 Business and Professional Speaking
COM 303 Organizational Communication

*BA 352 or BA 354 may not be used to satisfy both the Business Administration core and serve as a concentration elective.

And any **Two** of the following courses for a **Maximum** of 6 credits:

Acc 233 Cost Accounting
BA 240 Property Insurance
BA 241 Life Insurance
Ec 220 Labor Economics
Ec 223 Collective Bargaining
Mth 105 Introductory Calculus I
Mth 106 Introductory Calculus II
PS 218 Public Administration
PS 318 Public Personnel Administration
Psy 232 Human Behavior
Psy 243 Industrial Psychology
Soc 265 Sociology of Work

MARKETING

A **Minimum** of 4 courses or 12 credits from the following courses:

BA 223 Advertising
BA 224 Salesmanship
BA 227 Logistics and Distribution Management
BA 240 Property Insurance
BA 241 Life Insurance
BA 261 Principles of Retailing
BA 264 Retail Buying
BA 325 International Business Management
BA 395-396 Independent Research
BA 398 Topics

And any **Two** of the following courses for a **Maximum** of 6 credits:

Ec 224 Economic Development
Ec 225 International Trade
Ec 245 Consumer Economics
Eng 202 Technical Writing
Mth 105 Introductory Calculus I
Mth 106 Introductory Calculus II
Psy 221 Developmental Psychology **or**
Psy 232 Human Behavior
COM 102 Principles of Communication
COM 202 Interpersonal Communication
COM 206 Business and Professional Speaking
COM 302 Public Relations
SOC 260 Personality, Culture, and Society

INTERNATIONAL BUSINESS

A **Minimum** of 4 courses or 12 credits from the following courses:

Ec 224 Economic Development
Ec 225 International Trade and Finance
Ec 227 Economic Geography of North America, Europe, and the Soviet Union
Ec 228 Economic Geography of Asia, Africa, and Latin America
Ec 229 Comparative Economic Systems
BA 325 Seminar on International Business Management
Ec/BA 395-396 Independent Research
Ec/BA 398 Topics

And any **Two** of the following courses for a **Maximum** of 6 credits:

BA 256 Business and Society
Hst 328 United States Foreign Policy
Hst 356 Europe In the Twentieth Century
Hst 361-362 History of the Far East
Hst 348 History of Russia
PS 105 Comparative Government
PS 202 International Relations
PS 323 Democratic Systems
PS 324 Communist Systems
PS 325 Politics of Developing Areas
PS 329 International Law and Organization

HEALTH SERVICES ADMINISTRATION

A **Minimum** of 5 courses or 15 credits from the following specified courses:

BA 371 The U.S. Health Care System
BA 372 Health Care Finance and Reimbursement Principles
BA 373 Administration and Management of Health Care Organizations
BA 374 Seminar: Health Care Management Colloquium
SOC 240 Medical Sociology

And **One** elective course under the Business Administration Topics title for a **Maximum** of 3 credits:

BA 398 Topics

Business Administration Minor (Prerequisite: Ec 101, 102)

(24 credits, including Ec 101, 102)

1. **Finance**

Required: Acc 121 Intro. Financial Accounting
Acc 122 Intro. Managerial Accounting
BA 225 Managerial Finance
BA 226 Investments

Electives: Two of the following:

Ec 201 Money and Banking
Ec 225 International Trade and Finance
Ec 236 Public Finance
BA 241 Life Insurance

2. **Marketing**

Required: BA 222 Principles of Marketing

Electives: Five of the following:

BA 223 Advertising
BA 224 Salesmanship
BA 227 Logistics
BA 233 Legal Environment
BA 261 Principles of Retailing
BA 264 Retail Buying
COM 302 Public Relations

3. **Management**

Required: Acc 121 Intro. Financial Accounting
Acc 122 Intro. Managerial Accounting
BA 351 Management of Organizations
BA 354 Organiz. Design & Behavior

Electives: Two of the following:

BA 225 Managerial Finance
BA 256 Business and Society
BA 271 Human Resources Management
BA 325 International Business Management
BA 352 Op. Sys. & Mgmt.
BA 360 Business Policy and Decision-Making Seminar
Ec 223 Collective Bargaining

4. **Quantitative Business Analysis.** If this area is chosen, the student is advised to take Mth 105-106, or Mth 111-112 as a sequence in the Math/Science core.

Required: BA 352 Op. Sys. & Mgmt.
Ec 231 Statistics I
Ec 232 Statistics II

Electives: Three of the following:

BA 227 Logistics
Ec 241 Microeconomics
Ec 242 Microeconomics II
Mth 262 Operations Research

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. (Not open to Business Administration majors.)

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, and goodwill letters. Investigative techniques of research and analytical report writing.

Prerequisite: Junior standing.

BA 212. GOVERNMENT AND BUSINESS **Three credits**

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 220. REAL ESTATE **Three credits**

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 **Three credits**

An introduction to the planning and activities of marketing. Emphasis on budgeting, product conception and development, pricing, distribution channels and promotion.

Prerequisite: Junior/Senior standing.

BA 223. ADVERTISING **Three credits**

A managerial analysis of the decisions involved in advertising. Topics include research, ethics, campaign design, copy, art, media, budgeting, and effectiveness.

Prerequisite: BA 222.

BA 224. 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.

Prerequisite: BA 222.

BA 225. MANAGERIAL FINANCE **Three credits**

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.

Prerequisite: Junior/Senior standing.

BA 226. INVESTMENTS **Three credits**

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.

Prerequisite: Junior/Senior standing.

BA 227. 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.

Prerequisite: BA 222.

BA 233. THE LEGAL ENVIRONMENT OF BUSINESS **Three credits**

This course provides a foundation for business managers to operate within the legal environment in which all businesses in our society function. It provides an overview of law and our legal system, the lawmaking and adjudicatory processes, and the roles of economic, social, and political forces in the shaping of constraining legal rules and regulations.

Prerequisite: Sophomore standing.

BA 234. BUSINESS LAW AND ETHICAL RESPONSIBILITY **Three credits**
An in-depth study of contracts, commercial transactions, the Uniform Commercial Code, business organizations, property law, liability of accountants, and debtor-creditor relationships. Provides the necessary legal background for those entering the accounting profession.
Prerequisite: BA 233.

BA 240. PROPERTY AND LIABILITY INSURANCE **Three credits**
A study of the principles of property and liability insurance applied to the needs of individuals and organizations. Course content includes risk management, types of insurance and public policy issues.

BA 241. LIFE AND HEALTH INSURANCE **Three credits**
A study of the principles of life and health insurance on both an individual and group basis. Course content includes types of insurance, insurer operations and public policy issues.

BA 256. BUSINESS AND SOCIETY **Three credits**
A course dealing with the problems faced by managers in responding to issues such as: the kinds and extent of social responsibility to be assumed by businesses, employee rights, consumerism, and the balance of public and private interests.
Prerequisite: Junior/Senior standing.

BA 261. PRINCIPLES OF RETAILING **Three credits**
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.
Prerequisite: BA 222.

BA 264. RETAIL BUYING **Three credits**
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 **Three credits**
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.
Prerequisite: Junior/Senior standing.

BA 325. SEMINAR ON INTERNATIONAL BUSINESS MANAGEMENT **Three credits**
An introduction to the field of international business. The empirical dimensions of the world economy; business enterprise in international trade; trade channels; effects of economic, political and social environment on international management problems of international operations; the role of government in fostering international business. A substantial amount of writing is required.
Prerequisite: BA 351 and senior standing.

BA 351. MANAGEMENT OF ORGANIZATIONS **Three credits**
Introduction to the theory and practice of managing organizations, including planning, organizing, and controlling. Interdisciplinary in nature, social and ethical dimensions of managing are examined.
Junior standing.

BA 352. 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.
Prerequisite: BA 351.

BA 354. ORGANIZATIONAL DESIGN AND BEHAVIOR **Three credits**
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.
Prerequisite: BA 351.

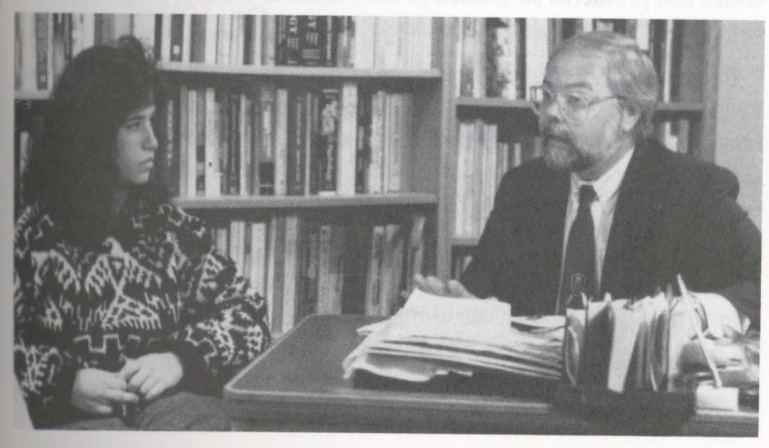
BA 360. BUSINESS POLICY AND DECISION-MAKING SEMINAR **Three credits**
A capstone course that integrates the functional areas of business from the point of view of top management. Emphasis is on the role of management in the formation of strategic and long-range plans. A substantial writing component is included.
Prerequisite: BA 351 and senior standing.

BA 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.

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

BA 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)
Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

BA 198/298/398. TOPICS **Variable credit**
Lectures on subjects of special current interest in business which are not covered in other courses.



ECONOMICS

Associate Professor Peper, Chairperson; Professors Emeritus Farrar, Werner; Professor Taylor; Associate Professors DeYoung, Seeley.

Total minimum number of credits required for a major in Economics leading to the B.A. degree — 122.
Total minimum number of credits required for a minor — 24.

The Department of Business and Economics offers both a major and minor in economics. The major program is designed for those students seeking a rigorous exposure to the theoretical explanations of the behavior of an economic system, and the economic decisions and policies which flow from these theories. It is a major with inherent flexibility which allows a student to design an educational program tailored to his or her needs and interests.

The economics curriculum is quite quantitative. Consequently, a student majoring in economics should ensure that his or her liberal arts core includes mathematical preparation through at least introductory calculus (Math 105-106).

All economics majors must take Economics 101-102. This gives them opportunities to experience the full range of the discipline and to consider where economists may bring to bear their unique expertise. In addition, all majors must take Money and Banking, Economic Statistics, Intermediate Macroeconomics, and Intermediate Microeconomics. Beyond these requirements, majors are encouraged to explore specializations which might be of particular interest to them and best prepare them for their prospective careers.

For students who have chosen other majors, a minor in economics often is a valuable complement. Its ability to bring into sharp focus the economic issues and problems subsumed in such areas as history, pre-law, music, or engineering make it a valuable career asset.

Economists find that opportunities to apply their skill and knowledge exist in all sectors of the economy. Businesses of every description have economists on their staffs. Governmental bodies and not-for-profit organizations also are major employers of economists. However, a career in higher education often is the one chosen by economists.

In all of the above cases, further study at the graduate level is virtually a necessity. Because Wilkes graduates have had ready access to the most prestigious graduate schools, our alumni are to be found in a variety of meaningful careers where they are making significant contributions.

Minor in Economics

Students choosing to minor in Economics must complete Ec 101 and 102 and at least three courses in one of the following four areas.

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 220	Labor Economics
Ec 229	Comparative Economic Systems
Ec 230	Business Cycles
Ec 236	Public Finance

Recommended Course Sequence for a Degree with a Major in Economics

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Mth 105 Calculus I	4	Mth 106 Calculus II	4
Core Requirements	6	Core Requirements	9
CST 101 Core Studies I	1	PE 100 Activity	0
CS 115 Survey of Computers	3		16
PE 100 Activity	0		
	17		

Third Semester

Ec 101 Economics I	3
Core Requirements	9
Free Elective	3
	15

Fourth Semester

Ec 102 Economics II	3
Core Requirements	9
Free Elective	3
	15

Fifth Semester

Ec 231 Statistics I	3
Ec 201 Money and Banking	3
Ec 241 Microeconomics I or	3
Ec 251 Macroeconomics I	
Free Electives	6
	15

Sixth Semester

Ec 232 Statistics II	3
Major Elective	3
Free Electives	9
	15

Seventh Semester

Ec 241 Microeconomics I or	3
Ec 251 Macroeconomics I	
Major Elective	3
Free Electives	9
	15

Eighth Semester

Major Elective	3
Free Electives	12
	15

EC 101. PRINCIPLES OF ECONOMICS I — **Three credits**

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.

Prerequisite: Sophomore standing.

EC 102. PRINCIPLES OF ECONOMICS II — **Three credits**

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.

Prerequisite: Ec 101.

EC 201. MONEY AND BANKING — **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 220. LABOR ECONOMICS — **Three credits**

A study of the forces that determine labor market outcomes such as wage rates, employment levels, and productivity of the workforce. Emphasis will be placed upon the various measures of labor supply as well as the differences in the demand for labor in competitive versus noncompetitive markets. Key topics will include: the various types of unemployment; search theory; the impact of legal and illegal immigration; collective bargaining and the economics of unions; labor market discrimination and comparable worth.

Prerequisites: Ec 101 and 102.

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.

Prerequisites: Ec 101-102.

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 AND FINANCE — **Three credits**

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 General Agreement on Trade and Tariffs; current issues.

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.

Prerequisites: Ec 101-102.

EC 230. BUSINESS CYCLES — **Three credits**

Historical analysis of major business cycles. Contemporary theories and a critical examination of public policy toward business cycles. Forecasting with econometric models.

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 economics, accounting, finance, marketing and management.

Prerequisites: Ec 101, 102 and 6 hours of mathematics.

EC 232. APPLIED ECONOMIC STATISTICS II — MULTIVARIATE ANALYSIS — **Three credits**

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.

Prerequisite: Ec 231 or permission of instructor.

EC 234. ECONOMIC RESEARCH **Three credits**
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 **Three credits**
Fundamental principles of public finance; government expenditures; revenue; financial policies and administration; taxation; principles of shifting and incidence of taxation; public debts and the budget; fiscal problems of federal, state, and local government; the relation of government finance to the economy.
Prerequisites: Ec 101-102.

EC 241. MICROECONOMICS I **Three credits**
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.
Prerequisite: Ec 102.

EC 242. MICROECONOMICS II **Three credits**
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 **Three credits**
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 **Three credits**
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.
Prerequisite: Ec 101.

EC 252. MACROECONOMICS II **Three credits**
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.
Prerequisite: Ec 251.

EC 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.

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

EC 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)
Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic adviser, approval of placement by department chairperson.

EC 198/298/398. TOPICS **Variable credit**
Lectures on current issues and developments in economics.

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 University. In addition, credit may be assigned for appropriate off-campus study, work, 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 121 credits. Although there are no specific course requirements, the spirit of the Wilkes University core curriculum is to be respected.

INTERNATIONAL STUDIES

Associate Professor Merryman, International Studies Advisor.

Total minimum number of credits required for a major in International Studies leading to the B.A. degree — 121.

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 121, of which 46 are the core requirements and 33 are major requirements. For the International Studies major, the following courses at the introductory level are required, some 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 6 hours of advanced Foreign Language beyond the 204 level. In addition, students must complete 2 courses from among Anthropology 270, Political Science 202, and Economics 229, plus either Economics 224 or 225.

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, East European and Russian Studies, 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

East European and Russian Studies
- Four courses (12 credits) from those listed under the East European and Russian Studies minor on page 133

Third World
- Anthropology 270, 352, 353, and/or 392
- Economics 224, 225, and/or 228
- History 363, 365, 367
- 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 323, 329
- Sociology 252
- 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, 227, 228, and/or 229

International Politics:
- History 328, 348, 364, and/or 376
- Political Science 202, 323, 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 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 Anthropology Department.

Recommended Course Sequence for International Studies Major

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Hst 101 World Civilization I	3	Hst 102 World Civilization II	3
Ec 101 Principles of Economics I	3	Ec 102 Principles of Economics II	3
Ant 101 Intro. to Anthropology	3	PS 105 Comparative Government	3
Foreign Language*	3	Foreign Language*	3
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		15
	16		

Third Semester		Fourth Semester	
Ant 270 Cultural Anthropology and/or PS 202 International Relations and/or Ec 229 Comparative Economic Systems*	6	Ec 224 Economic Development and/or Ec 225 International Trade and/or Ec 226 International Investment and Finance*	3
Foreign Language*	3	Foreign Language*	3
Core Requirements	6	Core Requirements	6
	15	Major Elective	3
			15

Fifth Semester		Sixth Semester
Study Abroad**	15	15

Seventh Semester		Eighth Semester	
Foreign Language	3	Foreign Language	3
Major Electives	6	Major Elective	3
Core Requirements	6	Core Requirement	3
	15	Free Elective	3
		Senior Seminar*	3
			15

*These 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 International Studies Advisor.

POLITICAL SCIENCE AND PUBLIC ADMINISTRATION

Professor Baldino, Chairperson; Professor Emerita Driscoll; Professor Basu; Associate Professor Brand; Assistant Professors Auerbach, Tuhy.

Total minimum number of credits for a major in Political Science leading to the B.A. degree — 121.

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 121 hours. These include 46 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, 312, 314, 316, 318, 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 Major in Political Science

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
PS 102 American Government or PS 105 Comparative Government	3	PS 102 American Government or PS 105 Comparative Government	3
Core Requirements	9	Core Requirements	9
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		15
	16		

Third Semester		Fourth Semester	
PS 201 Political Theory	3	PS 202 International Relations	3
Core Requirements	12	PS 238 Concepts and Methods	3
		Core Requirements	9
	15		15

Fifth Semester	
Major Electives	6
Free Electives	9
	15

Sixth Semester	
Major Electives	6
Free Electives	9
	15

Seventh Semester	
Major Elective	3
Free Electives	12
	15

Eighth Semester	
Major Elective	3
Free Electives	12
	15

Recommended Course Sequence for Concentration in Public Administration

First Semester	
Eng 101 Composition I	3
PS 102 American Government or	
PS 105 Comparative Government	3
Ec 101 Principles of Economics	3
Core Requirements	6
CST 101 Core Studies I	1
PE 100 Activity	0
	16

Second Semester	
Eng 102 Composition II	3
PS 102 American Government or	
PS 105 Comparative Government	3
Mth 150 Statistics	3
Core Requirements	6
PE 100 Activity	0
	15

Third Semester	
PS 201 Political Theory	3
Major Elective	3
Core Requirements	9
	15

Fourth Semester	
PS 202 International Relations	3
PS 238 Concepts and Methods	3
Core Requirements	9
	15

Fifth Semester	
Public Administration Electives (Two Courses from PS 218, 312, 314, 316, 318, 354, or 398)	6
Core Requirement	3
Free Electives	6
	15

Sixth Semester	
Public Administration Electives (Two Courses from PS 218, 312, 314, 316, 318, 354, or 398)	6
Free Electives	9
	15

Seventh Semester	
Public Administration Elective (One course from PS 218, 312, 314, 316, 318, 354, or 398)	3
Free Electives	12
	15

Eighth Semester	
PS 354 Practicum*	6
Free Electives	9
	15

*Recommended

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 (infrastructure), 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**

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.

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 **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. EUROPE: EAST AND WEST **Three credits**
Comparison of the development, institutions, problems, and prospects of democratic systems in the two regions of Europe and their relation to capitalist-industrial society. Special attention is paid to the problems of transforming the formerly communist political, social, and economic institutions of Eastern Europe into forms that encourage and support democratic development.
Prerequisite: PS 105 or consent of instructor.
Offered in alternate years.

PS 324. SOVIET POLITICS **Three credits**
Analysis of the social and political conditions out of which the communist system of the Soviet Union developed, and the changes that have occurred in that system that have spawned the rise of communist "New Thinking" and anti-communist democratic forces. Examines the political legacy of Marxism and Leninism in the context of current developments, and pays attention to the problems of creating a pluralistic, market-based foundation for formerly communist political, social, and economic institutions.
Prerequisite: PS 105 or consent of instructor.
Offered in alternate years.

PS 325. POLITICS OF DEVELOPING AREAS **Three credits**
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 **Three credits**
See description under History.

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 non-governmental organizations and other non-state actors.
Prerequisite: PS 202 or permission of instructor.
Offered in alternate years.

PS 331. CONSTITUTIONAL LAW I **Three credits**
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 **Three credits**
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**
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 **Three credits**
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**
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 chairperson 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.
Prerequisite: Approval of department chairperson.
Offered every semester.

PS 397. SEMINAR **Three credits**

Presentations and discussions of selected topics by students.

PS 399. COOPERATIVE EDUCATION **One to six credits**

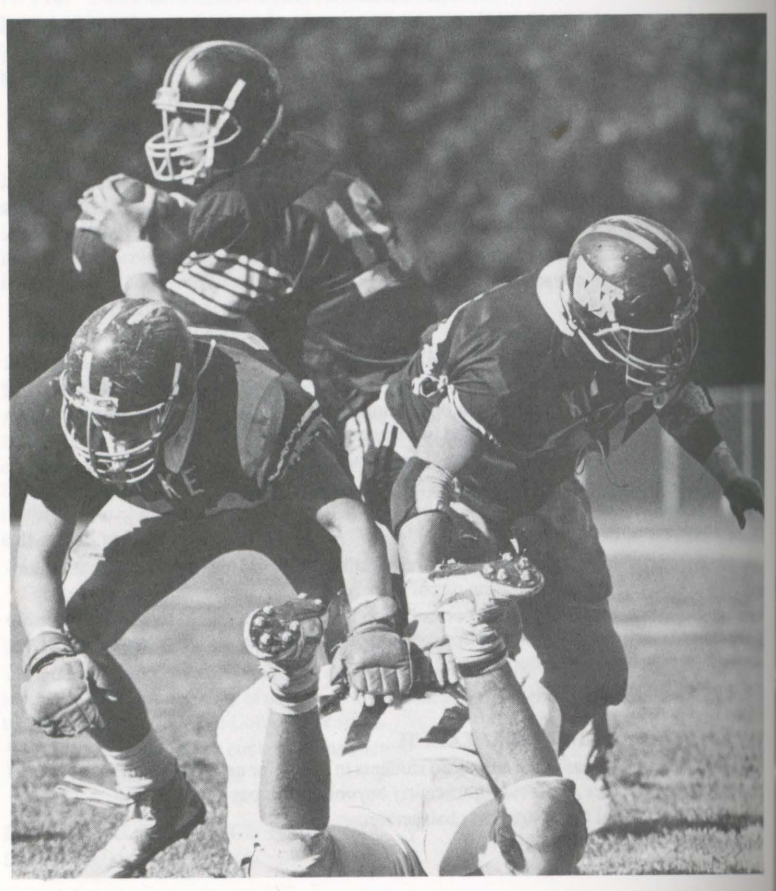
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

PS 198/298/398. TOPICS IN POLITICAL SCIENCE/ TOPICS IN POLICY ANALYSIS **Variable credit**

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 chairperson, criterion depending on topic.



PRE-LAW STUDIES

Assistant Professor Auerbach, Advisor.

Wilkes University has developed a carefully designed pre-law advisory program which has proved able to provide exceptionally effective support for students seeking admission to graduate schools of law. The Pre-law Program at Wilkes is based on the principle that admission to, and success in, law school depends upon completion of a rigorous curriculum at the undergraduate level as well as an up-to-date understanding of the law school admission process. One of the greatest strengths of Wilkes University is its ability to provide students from different educational backgrounds with a sound education that prepares them for the challenges of leading professional schools.

Law schools do not prescribe a specific undergraduate major but rather suggest a broadly-based educational program which enhances the student's ability to reason, read analytically, and write effectively. Students interested in law school may major in any field, but the most frequently chosen areas are: political science, English, history and business administration. Majors such as sociology, nursing, biology, engineering, computer science, psychology, or earth and environmental science also provide appropriate preparation for legal studies. Indeed, a major in a technical field may be especially useful in particular aspects of legal practice.

Advising

Wilkes students are assigned to faculty advisors in the areas of their majors. These advisors guide them regarding degree requirements in particular fields. Pre-law students also consult with a designated pre-law advisor, who acquaints them with aspects of legal study and practice. Pre-law advisors have available law school catalogs, information on the Law School Admission Test (LSAT) and copies of the *Pre-law Handbook,* which contains information about all law schools accredited by the American Bar Association.

Each Wilkes pre-law student is included in regularly scheduled activities, such as seminars on legal practice, briefings on law school admissions, workshops on application preparation and interviews, and law school visits.

As the senior year approaches, pre-law advisors provide suggestions as to which law schools are most likely to admit students with particular academic records and LSAT scores. Most importantly, pre-law advisors help to overcome the myths which too often affect student thinking about law schools.

SOCIOLOGY

Associate Professor Natzke, Chairperson; Associate Professors Garr, Merryman; Assistant Professor Tuttle; Adjunct Faculty Loftus-Vergari, Tomkiewicz.

Total minimum number of credits required for a major in Sociology leading to the B.A. degree — 121.
Total minimum number of credits required for a minor — 18.

The curriculum constitutes 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. The department emphasizes internships in professional settings which integrate academic studies with work experiences.

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 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 Ant 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 (Soc 385), 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 twenty-four hours required for the major. Approval of the department chairperson 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 (Soc 385), 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 chairperson is required before registering for Practicum.

Social Work/Human Services

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 135.

Recommended Course Sequence for a Major in Sociology

First Semester		Second Semester	
Soc 101 Intro. to Sociology	3	Ant 101 Intro. to Anthropology	3
Eng 101 Composition I	3	Eng 102 Composition II	3
Core Requirements	9	Core Requirements	9
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		15
	16		

Third Semester		Fourth Semester	
Core Requirements	9	Core Requirements	9
Major Elective	3	Major Elective	3
Free Elective	3	Free Elective	3
	15		15

Fifth Semester		Sixth Semester	
Soc 255 Social Psychology	3	Major Electives	6
Major Elective	3	Free Electives	9
Core Requirement	3		15
Free Electives	6		
	15		

Seventh Semester		Eighth Semester	
Soc 370 Methods*	3	Soc 380 Sociological Theory*	3
Free Electives	12	Soc 396 Independent Research	1
	15	Free Electives	12
			16

*Students with educational aspirations beyond the bachelor's degree and/or full-time internship commitments during 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 semesters respectively.

SOC 101. INTRODUCTION TO SOCIOLOGY **Three credits**
A systematic view of sociology, providing essentials for an approach to questions about man in 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.
Prerequisites: Soc 101, Ant 101, or approval of instructor.

SOC 204. FAMILY VIOLENCE **Three credits**
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 aberration. Research evidence shows that neither of these views is correct. This course examines the prevalence, experience, causes, and prevention of family violence.
Prerequisites: Soc 101, Ant 101, or approval of instructor.

SOC 206. SEX ROLES **Three credits**
This course deals with the origins of sex roles, the historical changes in sex roles, the consequences of sex roles to the individual and to society, and the outlook for sex roles in the future.
Prerequisites: Soc 101, Ant 101, or approval of instructor.

SOC 230. SOCIAL PROBLEMS **Three credits**
A survey of most pressing contemporary social problems and an examination of current theories 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 **Three credits**
Surveys findings and methods in current applications of sociology to medicine. Includes a consideration of large and small scale social influences on the organization of medical institutions and practices.
Prerequisites: Soc 101, Ant 101, or permission of the instructor.

SOC 241. THE SOCIOLOGY OF MENTAL DISORDERS **Three credits**
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.
Prerequisites: 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.
Prerequisites: 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 patterns 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.
Prerequisites: 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, 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, or approval of instructor.

SOC 260. PERSONALITY, CULTURE, AND SOCIETY **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, 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 or Ant 101, or approval of instructor.

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 sociology as well as for clarification of its distinct subject matter, problems, and methods.
Prerequisite: Soc 101, or approval of instructor.

SOC 385. PRACTICUM **Six credits**
A supervised practical field experience designed for sociology majors that involves work in a professional setting.

SOC 391. SOCIAL SOUNDNESS ANALYSIS I **One credit**
Objectives, method, and design for assessing the societal impact of technological innovations and development projects. The economic, political, and cultural assumptions of project planners and social impact implications of project designs are considered. Students select specific projects for analysis and submit detailed plans for implementing their own social soundness analysis.
Prerequisite: Approval of instructor.

SOC 392. SOCIAL SOUNDNESS ANALYSIS II **Two credits**
Continuation of SOC 391. Implementing social soundness analysis under direction of instructor for projects selected in previous semester. A completed professional quality social soundness report presented and discussed in an open forum is required.
Prerequisite: Successful completion of Soc 391.

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 **Three credits**
Presentations and discussions of selected themes and issues in sociology.
Prerequisite: Criteria will vary according to content of seminar.

SOC 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)
Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

SOC 198/298/398. TOPICS **Three credits**
A study of topics of special interest not extensively treated in regularly offered courses.

The School of Liberal Arts and Human Sciences

James P. Rodechko, Ph.D.
Dean of the School

The School of Liberal Arts and Human Sciences is committed to fostering the fundamental skills, knowledge, and values that are essential to an educated citizenry. The faculty of the school recognizes the ideal of creating enlightened citizens as a vital, evolving challenge. While those entrusted with the responsibility of education must be responsive to the needs and aspirations of all citizens, they must also encourage students to respect the standards that will allow them to achieve excellence and distinction in meeting their goals. Programs in the School of Liberal Arts and Human Sciences offer students an opportunity not only to acquire skills and knowledge, but also to understand and appreciate that their skills and knowledge must be informed by values and measured by standards that make them meaningful. Thus, the School's mission is to encourage students to understand their education in the broadest sense, as an experience that will influence the way they conduct their lives personally and professionally, in relation to their own well-being and the well-being of others.

The School of Liberal Arts and Human Sciences is committed to the values of general education as reflected in the Core Curriculum, which provides a common educational experience for students preparing for a variety of academic, professional, and vocational goals. All students at Wilkes take courses in the disciplines represented in the School, disciplines that teach students to think critically and creatively, to communicate their knowledge effectively, and to understand their place in a complex, diverse, and changing world. Students are encouraged to participate with faculty in extending the boundaries of human knowledge, achievement, and creativity through scholarship, research, artistic expression, and athletic endeavor.

The School of Liberal Arts and Human Sciences includes the following departments:

Art
Communications
Education
English
Foreign Languages
History
Music, Theater, Dance
Nursing
Philosophy
Physical Education
Psychology

ART

Professor Fuller, Chairperson; Professor Simon; Associate Professors O'Toole, Sterling; Assistant Professor Bowar; Adjunct Faculty Adams, Cohen, Stanford.

Total minimum number of credits required for a major in Art leading to the B.A. degree — 124.
(Art Education Certification requires an additional 32 credits)
Total minimum number of credits required for a major in Art leading to the B.F.A. degree — 124.
(Art Education Certification requires an additional 32 credits)
Total minimum number of credits required for a minor in Art — 18. (Above Art 101)

The B.A. curriculum requires a minimum of 42 credits in art. An interdisciplinary concentration in Art Management is also offered in the B.A. program (requiring a minimum of 36 credits in art). The B.F.A. curriculum requires a minimum of 63 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 100, 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 Certification: The above except one 300-level course plus Education 201, 202, 203, 204, 357, 382, 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 399 (Internship, 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).

B.F.A. graduates will present a written analysis and photographic survey of their work for graduation. Art majors are required to participate in sophomore and junior reviews.

All students seeking admission to the art major must submit a portfolio of at least 8 works (originals or slides).

Recommended Course Sequences for a Major in Art Leading to the B.F.A. Degree

First Semester

	Fine Arts B.A.	Fine Arts B.F.A	Com. Design
Art 100 Studio Skills	1	1	1
Art 103 Color & Design I	3	3	3
Art 105 Drawing & Composition	3	3	3
Eng 101 Composition I	3	3	3
Core Requirements	6	6	6
CST 101 Core Studies I	1	1	1
PE 100 Activity	0	0	0
	17	17	17

Second Semester

	Fine Arts B.A.	Fine Arts B.F.A	Com. Design
Art 104 3-D Design	3	3	3
Art 206 Color & Design II	3	3	3
Eng 102 Composition II	3	3	3
Core Requirements	6	6	6
PE 100 Activity	0	0	0
	15	15	15

Third Semester

	Fine Arts B.A.	Fine Arts B.F.A	Com. Design
Art 115 History of Art I	3	3	3
Art 221 Painting I	3	3	—
Art 225 Printmaking I	3	3	3
Art 270 Photography I	—	—	3
Core Requirements	3	3	6
Free Elective	3	3	3
	15	15	18

Fourth Semester

	Fine Arts B.A.	Fine Arts B.F.A	Com. Design
Art 116 History of Art II	3	3	3
Art 220 Life Drawing	3	3	3
Art 254 Graphic Design	—	—	3
Core Requirements	6	6	6
Free Elective	3	3	0
	15	15	15

Fifth Semester

	Fine Arts B.A.	Fine Arts B.F.A	Com. Design
Art 217 Modern Art	3	3	3
Art 233 Sculpture I	3	3	—
Art 243, 248, or 270	3	3	—
Art 255 Graphic Prod.	—	—	3
COM 222 Broadcast Prod.	—	—	3
Core Requirement	3	3	3
Free Elective	3	3	3
	15	15	15

Sixth Semester

	Fine Arts B.A.	Fine Arts B.F.A	Com. Design
Art 300-Level Elective	3	3	3
Major Elective	—	3	3
Core Requirement	3	3	3
Free Electives	9	6	6
	15	15	15

Seventh Semester

	Fine Arts B.A.	Fine Arts B.F.A	Com. Design
Major Electives	—	9	6
Free Electives	15	6	9
	15	15	15

Eighth Semester

	Fine Arts B.A.	Fine Arts B.F.A	Com. Design
Design Topic	—	—	3
Art 490 Advanced Problems	—	9	6
Art 397 Sem: Contemp. Issues	2	2	2
Art 499 Senior Exhibition	0	0	0
Free Electives	15	6	3
	17	17	14

Recommended Course Sequences for an Art Major and Certification in Art Education

First Semester

	B.A.	B.F.A.
Art 100 Studio Skills	1	1
Art 103 Color & Design I	3	3
Art 105 Drawing & Composition	3	3
Eng 101 Composition I	3	3
Psy 101 General Psychology	3	3
Core Requirement	3	3
CST 101 Core Studies I	1	1
PE 100 Activity	0	0
	17	17

Second Semester

	B.A.	B.F.A.
Art 104 3-D Design	3	3
Art 206 Color & Design II	3	3
Eng 102 Composition II	3	3
Psychology Elective	3	3
Core Requirement	3	3
PE 100 Activity	0	0
	15	15

Third Semester

	B.A.	B.F.A.
Art 115 History of Art I	3	3
Art 221 Painting I	3	3
Art 225 Printmaking I	3	3
Ed 201 Effective Teaching	3	3
Phl 101 Intro. to Phil.	3	3
	15	15

Fourth Semester

	B.A.	B.F.A.
Art 116 History of Art II	3	3
Art 220 Life Drawing	3	3
Ed 202 Educ. Psych.	3	3
Ed 354 Multicultural Educ.	2	2
Core Requirements	6	6
	17	17

Fifth Semester

	B.A.	B.F.A.
Art 217 Modern Art	3	3
Art 233 Sculpture I	3	3
Art 243 or 248 or 270	3	3
Phl 216 Phil. of Art	3	3
Core Requirements	3	6
	15	18

Sixth Semester

	B.A.	B.F.A.
Art 243 or 248 or 270	3	3
Art 397 Sem: Contemp. Issues	2	2
Art 300-Level Elective	—	3
Ed 203 Art Methods	4	4
Ed 357 Content Area Reading	2	2
Core Requirements	6	3
	17	17

Seventh Semester

	B.A.	B.F.A.
Ed 204 Art Curricula	3	3
Art 300-Level Elective	3	—
Major Electives	—	6
Free Electives	9	9
	15	18

Eighth Semester

	B.A.	B.F.A.
Ed 382 Intern Teaching	15	15
Art 499 Senior Exhibition	0	0
	15	15

Ninth Semester

	B.A.	B.F.A.
Art 490 Advanced Problems	—	9
Major Electives	—	6
		15

Recommended Course Sequence for a Major in Art Management

First Semester

Art 100 Studio Skills	1
Art 103 Color & Design I	3
Art 105 Drawing & Composition	3
Eng 101 Composition I	3
Ec 101 Principles of Economics I	3
Core Requirement	3
CST 101 Core Studies I	1
PE 100 Activity	0
	17

Second Semester

Art 104 3-D Design	3
Art 206 Color & Design II	3
Eng 102 Composition II	3
Ec 102 Principles of Economics II	3
Core Requirement	3
PE 100 Activity	0
	15

Third Semester

Art 115 History of Art I	3
BA 216 Advertising or Acc 101 Elementary Accounting I	3
Core Requirements	6
Free Elective	3
	15

Fourth Semester

Art 116 History of Art II	3
Art 220 Life Drawing	3
Art 254 Graphic Design	3
BA 222 Marketing or Acc 102 Elementary Accounting II	3
Core Requirement	3
	15

Fifth Semester

Art 270 Photography I	3
Art History 200-level	3
BA Elective	3
or BA 251 Principles of Mgmt.	
Core Requirement	3
Free Elective	3
	15

Sixth Semester

Art Elective	3
BA Elective	3
or BA 254 Organizational Design	
Core Requirement	3
Free Electives	6
	15

Seventh Semester

COOP 301 Internship	3
BA Elective	3
Core Requirement	3
Free Electives	6
	15

Eighth Semester

Art 397	2
BA Elective	3
Free Elective or COM 101 Speech	3
Free Electives	9
Art 499 Senior Exhibition	0
	17

ART 100. STUDIO SKILLS One credit

This course provides art students with an introduction to basic materials, tools, and techniques with which artists should be familiar, over and above those covered in specific disciplines. Students will keep a notebook suitable for future reference. One 75-minute studio class each week (primarily demonstrations). Required for all art majors, preferably in their freshman year. Offered each fall semester.

ART 101. EXPERIENCING ART I Three credits

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.

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 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. Fee: $25.

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 Three credits

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 stone and wood. Fee: $20.

ART 243. CERAMICS I Three credits

Exploration into the basic methods and techniques of hand building and wheel work. Experimentation in surfaces decoration, glazing, and kiln firing. Fee: $30.

ART 245. SURFACE DESIGN I Three credits

An exploration of both traditional and contemporary methods of the fabric enhancement, with emphasis on the Shibori process. Fee: $20.

ART 248. FIBER I Three credits

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

ART 254. GRAPHIC DESIGN I Three credits

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. Fee: $25.

ART 255. GRAPHIC ARTS PRODUCTION Three credits

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. Fee: $25.

ART 270. PHOTOGRAPHY I Three credits

An introduction to the fundamentals of photography; camera usage, subject consideration, lighting, darkroom techniques, and the preparation of photographs for exhibit. Fee: $25.
NOTE: Each student must have access to an adjustable 35mm camera.

ART 325. PAINTING II Three credits

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

Prerequisite: Art 221.

ART 328. PRINTMAKING II Three credits

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

Prerequisite: Art 225.

ART 333. SCULPTURE II Three credits

An exploration into metal sculpture employing gas and electric welding processes; plastics. Advanced work in carving, construction, and assemblage in various media. Fee: $20.

Prerequisite: Art 233 or permission of instructor.

ART 344. CERAMICS II — **Three credits**

Advanced work in both hand-built and wheel-thrown ceramics. Fee: $30.

Prerequisite: Art 243.

ART 348. FIBER II — **Three credits**

Advanced study of weaving processes using a variety of loom structures.

Prerequisite: Art 248.

ART 370. PHOTOGRAPHY II — **Three credits**

Advanced work in black and white photography, including the zone system; refined darkroom techniques and development of a personal style. Fee: $25.

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 chairperson 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.

ART 399. COOPERATIVE EDUCATION — **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

ART 198/298/398. TOPICS — **Variable credit**

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 advisor. The exhibition may be presented either in the fall or spring term.

COMMUNICATIONS

Associate Professor Kinney, Chairperson; Professors Bigler, Moran; Assistant Professors Beck, Bradbury, Elmes-Crahall, Incitti; Engineer, Brigido.

Total minimum number of credits required for a major in Communications leading to the B.A. degree — 121.

Total minimum number of credits required for a minor — 18.

The Department of Communications has concentrations in Rhetoric and Public Communication; Interpersonal and Organizational Communication; Telecommunications (Broadcasting); and Journalism. 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 students to advance beyond the entry level in their chosen fields or even to change fields entirely. We believe the curriculum also affords ample opportunity for the student to explore other disciplines.

The Major

Departmental Requirements:

All students choosing to major in Communications must fulfill specific departmental requirements. These courses contain skills, theory, analysis, performance, writing, and research. They are as follows:

COM 100 Modes of Expression
COM 101 Fundamentals of Public Speaking
COM 102 Principles of Communication
COM 397 Senior Seminar

The Department also has a six-hour writing requirement for all communication majors.

Concentration Requirements:

Each concentration is described and outlined on the following pages.

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.

All students concentrating in Interpersonal and Organizational Communication will choose five courses (15 credits) from the following:

COM 202 Interpersonal Communication
COM 203 Small Group Communication
COM 206 Business and Professional Speaking
COM 252 Internship
(Only three credits of internship may count in the concentration.)
COM 301 Persuasion
COM 302 Public Relations
COM 303 Organizational Communication

Writing Requirement (6 credits):

COM 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:

COM 201 Advanced Public Speaking
COM 203 Small Group Communication
COM 204 Argumentation and Debate
COM 206 Business and Professional Speaking
COM 252 Internship
(Only three hours of internship may count in the concentration.)
COM 300 Rhetorical Criticism
COM 301 Persuasion
COM 302 Public Relations

Writing Requirement (6 credits):

Eng 201 Advanced Composition and
COM 260 Basic Newswriting or
COM 225 Media Criticism

Political Communication Track:

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.

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
COM 100 Modes of Expression	3	COM 102 Principles of Communication	3
COM 101 Fundamentals of Speech	3	Core Requirements	9
Core Requirements	6	PE 100 Activity	0
CST 101 Core Studies I	1		15
PE 100 Activity	0		
	16		

Third Semester		Fourth Semester	
Concentration Selection	3	Concentration Selections	6
Writing Requirement	3	Writing Requirement	3
Core Requirements	9	Core Requirements	6
	15		15

Fifth Semester		Sixth Semester	
Concentration Selection	3	Concentration Selection	3
Core Requirements	6	Internship (See Advisor)	3
Major Elective	3	Core Requirement (If necessary)	3
Free Elective	3	Free Electives	6
	15		15

Seventh Semester		Eighth Semester	
Internship (See Advisor)	3	COM 324 Communication Research Methods	3
Concentration Selection	3	COM 397 Senior Seminar	3
Major Elective	3	Free Electives	9
Free Electives	6		15
	15		

Telecommunications

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.

All students concentrating in Telecommunications must take the following course:

COM 220 Introduction to Telecommunications

All students concentrating in Telecommunications will then choose five courses (15 credits) from the following:

COM 221 Basic Audio Production
COM 222 Basic Video Production
COM 223 The Art of Film
COM 224 Mass Media
COM 252 Internship
(Only three credits of internship may count in the concentration.)
COM 321 Broadcast Journalism
COM 322 Advanced Video Production
COM 362 Mass Communications Law

Writing Requirement (6 credits):

COM 225 Media Criticism or
COM 260 Basic Newswriting and
Eng 201 Advanced Composition

Recommended Course Sequence for Telecommunications Concentration

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
COM 100 Modes of Expression	3	COM 220 Intro. to Telecommunications	3
COM 101 Fundamentals of Speech	3	Core Requirements	9
Core Requirements	6	PE 100 Activity	0
CST 101 Core Studies I	1		15
PE 100 Activity	0		
	16		

Third Semester		Fourth Semester	
COM 102 Principles of Communications	3	Concentration Selections	6
Concentration Selection	3	Writing Requirement	3
Writing Requirement	3	Core Requirements	6
Core Requirements	6		15
	15		

Fifth Semester		Sixth Semester	
Concentration Selection	3	Concentration Selection	3
Core Requirements	6	Internship (See Advisor)	3
Major Elective	3	Core Requirement (If necessary)	3
Free Elective	3	Free Electives	6
	15		15

Seventh Semester		Eighth Semester	
Internship (See Advisor)	3	COM 324 Comm. Research Methods	3
Concentration Selection	3	COM 397 Senior Seminar	3
Major Elective	3	Free Electives	9
Free Electives	6		15
	15		

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:

COM 224 Mass Media
COM 254 Publication Design
COM 260 Basic Newswriting (may not be used to fulfill concentration requirement if already used to fulfill writing requirement)
COM 261 The American Newspaper
COM 360 Editing and Advanced Newswriting
COM 361 Feature Writing
COM 362 Mass Communications Law

Writing Requirement (6 credits):

COM 260 Basic Newswriting
Eng 201 Advanced Composition

Recommended Course Sequence for Journalism Concentration

First Semester	
Eng 101 Composition I	3
COM 100 Modes of Expression	3
COM 101 Fundamentals of Speech	3
Core Requirements	6
CST 101 Core Studies I	1
PE 100 Activity	0
	16

Second Semester	
Eng 102 Composition II	3
COM 102 Principles of Communication	3
Core Requirements	9
PE 100 Activity	0
	15

Third Semester	
Concentration Selection	3
Writing Requirement	3
Core Requirements	9
	15

Fourth Semester	
Concentration Selections	6
Writing Requirement	3
Core Requirements	6
	15

Fifth Semester	
Concentration Selection	3
Core Requirements	6
Major Elective	3
Free Elective	3
	15

Sixth Semester	
Concentration Selection	3
Internship (See Advisor)	3
Core Requirement (If necessary)	3
Free Electives	6
	15

Seventh Semester	
Internship (See Advisor)	3
Concentration Selection	3
Major Elective	3
Free Electives	6
	15

Eighth Semester	
COM 324 Comm. Research Methods	3
COM 397 Senior Seminar	3
Free Electives	9
	15

The Minor

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 COM 101 Fundamentals of Speech or COM 102 Principles of Communication

Electives: Five of the following:

- COM 202 Interpersonal Communication
- COM 203 Small Group Communication
- COM 206 Business and Professional Speaking
- COM 301 Persuasion
- COM 302 Public Relations
- COM 303 Organizational Communication

2. **Rhetoric and Public Communication Minor**

Required: Either COM 101 Fundamentals of Speech or COM 102 Principles of Communication

Electives: Five of the following:

- COM 201 Advanced Public Speaking
- COM 203 Small Group Communication
- COM 204 Argumentation and Debate
- COM 206 Business and Professional Speaking
- COM 300 Rhetorical Criticism
- COM 301 Persuasion
- COM 302 Public Relations

3. **Telecommunications Minor**

Required: COM 220 Intro. to Telecommunications

Electives: Five of the following:

- COM 221 Basic Audio Production
- COM 222 Basic Video Production
- COM 223 The Art of Film
- COM 224 Mass Media
- COM 321 Broadcast Journalism
- COM 322 Advanced Video Production
- COM 362 Mass Communications Law

4. **Journalism Minor**

Required: COM 260 Basic Newswriting

Electives: Five of the following:

- COM 224 Mass Media
- COM 254 Publication Design
- COM 261 The American Newspaper
- COM 360 Editing and Advanced Newswriting
- COM 361 Feature Writing
- COM 362 Mass Communications Law

COM 100. MODES OF EXPRESSION **Three credits**
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.

COM 101. FUNDAMENTALS OF PUBLIC SPEAKING **Three credits**
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)

COM 102. PRINCIPLES OF COMMUNICATION **Three credits**
A study of the theory and process of communication. Required of all department majors. Taught every spring semester. (Formerly Communication 101)

COM 144. DEPARTMENT PRACTICUM **One to two credits**
A – Debate and Forensics, C – WCLH Radio, D – The *Beacon,* E – Yearbook, F – Television, G – Department.
The Department Practicum may be taken for one to two credits per semester with the total not to 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 COM. Approval of credit must be by advisor and Department Chairperson.

COM 201. ADVANCED PUBLIC SPEAKING **Three credits**
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: COM 101 or consent of instructor. Course taught spring semester, every other year.

COM 202. INTERPERSONAL COMMUNICATION **Three credits**
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)
Prerequisite: COM 102. Course taught every fall semester.

COM 203. SMALL GROUP COMMUNICATION **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 participants. Course taught spring semester, every other year. (Formerly Communication 202)
Prerequisite: COM 102.

COM 204. ARGUMENTATION AND DEBATE **Three credits**
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: COM 101 or consent of instructor.

COM 205. ORAL INTERPRETATION **Three credits**
An investigation of literature that combines analysis with interpretive oral performance. Spring semester, every third year. (Formerly Speech 206)

COM 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)

COM 207. VOICE AND DICTION **Three credits**
A study of voice production and articulation, analysis of regional speech differences and standards.
Prerequisite: COM 101.

COM 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: COM 100 and COM 102. Taught every spring semester.

COM 221. 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: COM 220. Taught every second fall semester.

COM 222. BROADCAST PRODUCTION **Three credits**
A study of the principles and techniques of TV Studio Production. A special emphasis is placed on the utilization of these techniques in a broadcast setting. Included will be: Camerawork, Switching, Studio Equipment, Set Design, Directing and Producing. Fee: $25. (Formerly Communication 246)

COM 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.

COM 224. MASS MEDIA **Three credits**
A study of the mass media and their role in contemporary society. Course taught every other fall semester. (Formerly Communication 205)
Prerequisite: COM 100 and COM 102.

COM 225. MEDIA CRITICISM **Three credits**
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.

COM 252. INTERNSHIP **Three to six credits**
A supervised program of work and study in any of the concentrations. Permission of the department is required.

COM 254. PUBLICATION DESIGN **Three credits**
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 Art 254)

COM 260. BASIC NEWSWRITING **Three credits**
Fundamentals of newsgathering, newswriting, and news judgment for all media; study of news sources; fieldwork, research, and interview techniques. Fee: $25. (Formerly Communication 211)

Prerequisite: Eng 101-102 and COM 100. Offered every fall semester.

COM 261. THE AMERICAN NEWSPAPER **Three credits**
A survey of contemporary newspapers emphasizing the analysis of their editorial content. Includes an examination of alternative newspapers.

Prerequisite: COM 100 and COM 102. Offered every other spring semester.

COM 300. RHETORICAL CRITICISM **Three credits**
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: COM 101. Spring semesters, odd-numbered years.

COM 301. PERSUASION **Three credits**
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: COM 101. Fall semesters, odd-numbered years.

COM 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: COM 202 and COM 260. Fall semesters.

COM 303. ORGANIZATIONAL COMMUNICATION **Three credits**
Course focuses attention on traditional and modern concepts of communication channels in simple and complex organizations. Considerable attention is given to interviewing and conducting communication audits.

Prerequisite: COM 202. Spring semesters, even-numbered years.

COM 321. BROADCAST JOURNALISM **Three credits**
A study of the principles and methods of broadcast journalism. (Formerly Communication 241)

Prerequisite: COM 100. Course taught every other spring semester.

COM 322. VIDEO PRODUCTION **Three credits**
A study of the principles and techniques of video production. Scripting, producing, and editing videography are subjects covered extensively by this course. Each student will produce several video productions.

Prerequisite: COM 222. Course taught every other spring semester.

COM 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: COM 100 and 102, completion of departmental writing requirement, and junior/senior standing.

COM 360. JOURNALISM: EDITING AND ADVANCED NEWSWRITING **Three credits**
A study of specialized reporting and an introduction to news editing.

Prerequisite: COM 260.

COM 361. FEATURE WRITING **Three credits**
A study of feature articles for newspapers, syndicates, magazines, and specialized publications. Practice in research, interviewing, and writing.

Prerequisite: COM 160.

COM 362. MASS COMMUNICATION LAW **Three credits**
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: COM 100 and 102.

COM 395-396. INDEPENDENT RESEARCH **One to three credits**
Independent study and research for advanced students in the speech and communication programs under the direction of a staff member. A research paper at a level significantly beyond a term paper is required.

COM 397. SENIOR SEMINAR/COMMUNICATIONS **Three credits**
An in-depth investigation of current research and issues in communication. Research paper required. Open to all COM majors. (Formerly Communication 397)

Prerequisite: Junior/Senior standing.

COM 398. TOPICS **One to three credits**
A study of topics of special interest not extensively treated in regularly offered courses.

COM 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

DANCE

Associate Professor Campbell, Chairperson; Adjunct Faculty P. Degnan, K. Degnan.

Wilkes University as a dimension of its continuing development in the performing arts, has inaugurated a comprehensive program in the field of dance. The program is structured in such a manner as to allow for the evolution of a major program in the academic discipline of dance.

The courses listed below are being offered at the present time and are open to all qualified students of the University, as well as to part-time students from the community. These courses have been selected because of their appropriateness to freshman level work in a major program, and for their applicability to interdisciplinary work in the existing music and theater program.

DAN 110. INTRODUCTION TO MODERN DANCE **Three credits**
An introduction to the fundamentals of modern dance, concentrating on the Graham method.

DAN 120. TAP DANCE **Three credits**
An introduction to the fundamentals of tap dancing, with special reference to the technique of great American artists.

DAN 130. INTRODUCTION TO JAZZ DANCE **Three credits**
An introduction to the fundamentals of jazz techniques as systematized by the Luigi method.

DAN 150. CLASSICAL DANCE FOR THE STAGE **Three credits**
An introductory course entailing lecture/demonstration and studio exercises designed to explore the movement dynamics appropriate to dramatic presentation. Special emphasis is given to the development of sound classical ballet technique (per a modified Vaganova methodology) as the foundation for the cultivation of poise, stage presence, kinetic flexibility, and physical stamina — valuable qualities for the acting profession. Particular attention is given to pantomime and non-dance movement such as fencing and hand-to-hand combat in a stage-space setting.

DAN 100. DANCE APPRECIATION: COMPREHENSIVE DANCE FORMS **Three credits**
A general introduction to the various types of dance: (classical ballet, modern, jazz, and theatrical). This course is appropriate for the person who has had absolutely no participatory experience in this art form. It is designed to cultivate especially an appreciation of the aesthetic dimensions of dance, perceived for the first time as an opportunity for personal physical engagement.

DAN 131. JAZZ DANCE I **Three credits**
The first course involving an intensive and progressively challenging engagement in the Jazz techniques per the Luigi method.

DAN 151. CLASSICAL BALLET I **Three credits**
The first course in the study of the theory and techniques of Russian classical ballet, as pursued in the curricula of the schools of the Bolshoi and Kirov Ballets and derived from the methodology devised by Agrippina Vaganova and Cecchetti.

DAN 153. POINTE I **Three credits**
Basic techniques of ballet on pointe; introduction to variations from the classical repertory. Building on the foundation laid in DAN 151, this course is designed to help the female dancer make the transition from demi-pointe to pointe dancing.

DAN 157. PAS DE DEUX I **Three credits**
The basic techniques required for male and female dancers to perform as a unit. This course is intended to provide a gradual and individually-paced introduction into the techniques as well as the psychology of classical ballet partnering.
Prerequisite: Audition.

DAN 261. DANCE IMPROVISATION I **Three credits**
Designed to develop creativity in dance by exercising the student in movement in free forms while training the body as a disciplined instrument. Exploration of the broad range of dance movement in a choreographical context is intended to introduce the student into the elementary aspects of dance perception and design.

EAST EUROPEAN AND RUSSIAN STUDIES PROGRAM

East European and Russian Studies Program Coordinating Committee: Professors Hupchick, Director; Basu, DeYoung, Karpinich, Merryman, Rodechko.

Total minimum number of credits required for a minor — 21.

The East European and Russian Studies Program is an interdisciplinary program in which undergraduate students may earn a minor. Program requirements, which can be simultaneously used to fulfill the student's major and elective requirements, are twenty-one (21) credit hours distributed over four academic disciplines (i.e., history, political science, foreign languages and economics), with a minimum of three (3) credit hours in each and no more than nine (9) in any single discipline. As part of the requirement for the minor, seniors in the program take either a "cap" (or exit) seminar or an independent study (395, 396, or 397 course) in a relevant discipline in which they undertake an extensive research paper or project and present the results in a colloquium of students and faculty participating in the East European and Russian Studies Program. One year of college-level Russian (101 and 102) or other East European language (if offered), or second-year college-level German (203 and 204), is strongly recommended. A maximum of twelve (12) credit hours acquired through participation in Study Abroad programs may be applied toward fulfillment of the minor requirements, of which a maximum of six (6) may be accepted in any single discipline. The acceptability of Study Abroad credits toward fulfilling program requirements is determined by the East European and Russian Studies Program Coordinating Committee.

The minor is designed to add recognition of a multidisciplinary, international component to the student's degree and to supplement work in the student's major department. It further adds a professionally and personally valuable concentration for students majoring in such areas as business, history, political science, foreign languages, international studies, economics, and communications, among others.

The Coordinating Committee Director serves as the student advisor for the program. Students who select the minor should contact the Director, who will aid them in the selection of courses.

Departmental course offerings that are currently eligible for the East European and Russian Studies minor include:

Economics 227:	Economic Geography of North America, Europe and the Soviet Union
Economics 229:	Comparative Economic Systems
Foreign Languages:	
Russian 101:	Elementary Russian
Russian 102:	Elementary Russian
Russian 208:	Russian and East European Cultures
German 203:	Intermediate German
German 204:	Intermediate German
History 345:	Eastern Europe I
History 346:	Eastern Europe II
History 348:	History of Russia
Political Science 323:	Europe: East and West
Political Science 324:	Soviet Politics

Other eligible courses may be offered as topics courses or added to the departmental offerings listed above. Course additions will be approved and publicized by the Coordinating Committee during the pertinent academic year.

Beyond overseeing the program curriculum, the Coordinating Committee also administers outreach programs, such as lecture series, seminars and cultural events, that serve to broaden the goals and content of the program to the University community and to the community at large.

EDUCATION

Associate Professor Lynch, Acting Chairperson; Professors Emeriti Darte, Hammer; Professors Fahmy, Placek; Associate Professor Johnson; Assistant Professors Chase, Ginsburgh, G. Meyers, Polachek; Assistant Professor Williams, Director of Teacher Extension Programs.

Total minimum number of credits required for a major in Elementary Education — 130.

The Education Department offers a major in Elementary Education and 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.

All teacher education programs at Wilkes require students to major in a discipline other than education (Elementary Education majors **must** also major in an academic discipline). Individuals who want teacher certification in elementary education must major in one of the following: Art, Biology, Chemistry, Computer Science, Earth and Environmental Sciences, Economics, English, Foreign Languages, History, Interpersonal and Organizational Communication, Journalism, Mathematics, Philosophy, Physics, Political Science, Psychology, Theater Arts, Sociology, or Telecommunications.

Secondary Certification

Secondary school teaching certification candidates must take ED 201, 202, 203 (and/or appropriate special methods courses), 354, 357 and 382. They must also major in one of the following: Art, Biology, Chemistry, Earth and Environmental Sciences, English, Foreign Languages, Mathematics, Physics, Communications or Social Studies. (Note that Wilkes certifies teachers to teach Social Studies, not the individual disciplines of History, Political Science, Psychology, Sociology, and/or Economics.)

Social Studies certification candidates who major in history must take twelve credits beyond the introductory sequence 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, EES 261, Hst 207 and 208, PS 102, and Soc 101.

Elementary Education Certification

Students wishing to major in Elementary Education or be certified in Elementary Education must complete the following requirements:

1. Complete an academic major as described above;

2. Complete the following general education requirements, several of which may be incorporated into Core and Major requirements:

Math — 6 credits
Mth 103, 104, or higher numbered courses

History — 3 credits
Hst 207 or Hst 208 American History

Science — 12 credits
3 cr. Biology
3 cr. Earth & Environmental Sciences
3 cr. Chemistry or Physics
3 cr. Additional Biology, Earth & Environmental Sciences, Chemistry or Physics

Economics — 3 credits
Ec 101 Principles of Economics

Psychology — 6 credits
Psy 101 Principles of Psychology
Psy 221 Developmental Psychology

Geography — 3 credits
EES 261 Regional Geography

3. Complete the following education courses:

Ed 201 Effective Teaching	3
Ed 202 Educational Psychology	3
Ed 301 Health, Physical Education, and Safety in Early Childhood and Elementary Education	2
Ed 302 Children's Literature	2
Ed 321 Foundations of Reading	3
Ed 322 Language Arts in Early Childhood and Elementary Education	2
Ed 323 Mathematics in Early Childhood and Elementary Education	2
Ed 324 Arts in Early Childhood and Elementary Education	2
Ed 326 Social Studies in Early Childhood and Elementary Education	2
Ed 327 Science in Early Childhood and Elementary Education	2
Ed 353 Teaching Reading	2
Ed 354 Multicultural Education and Teaching Students with Special Needs	2
Ed 382 Intern Teaching	15

Early Childhood Education

Early Childhood Education candidates complete the elementary school teaching program described above and take Ed 361 and 362.

Art Education/Music Education

Teaching candidates in art or music will find their programs described on page 114 (art) or page 165 (music).

Admission Requirements

Students interested in preparing for teacher certification **must** be formally admitted to the Teacher Certification Program.

Students will **not** be permitted to enroll in education courses beyond Ed 201, Effective Teaching, until they are admitted to the teacher education program. Criteria for admission are:

1. Completion of at least 45 semester-hour credits;
2. A GPA of 2.5 to be admitted (and maintainance of a 2.5 GPA to continue in the program);
3. Successful completion of Ed 201, Effective Teaching, with a grade of at least 2.5;
4. Recommendation of a faculty member from the major department;
5. An interview with at least two members of the Education Department to assess speech, presentation and poise as well as aspiration and sincerity. Art or Music faculty members will also participate in the interview for students planning to major in those subjects; and
6. Pass an impromptu writing assessment that will take place just prior to the interview.

To be admitted to the teacher education program, applicants have to meet all requirements. Consideration of exceptions will start with review by the Department Chair and end with the decision of a departmental committee.

Interested students are encouraged to seek advice in the Education Department early in their first semester at the University.

Certification

Upon successful completion of the programs described above, candidates will be recommended for certification by the state after they pass the National Teacher Examination.

Recommended Course Sequence for Major/Certification in 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
Mathematics Elective	3	Mathematics Elective	3
Science Elective	3	Science Elective	3
Core Elective	3	Major Elective	3
PE 100 Activity	0	PE 100 Activity	0
CST 101 Core Studies I	1		
	16		15

Third Semester		Fourth Semester	
Ed 201 Effective Teaching	3	Science Elective	3
Ec 101 Principles of Economics I	3	Ed 202 Educational Psychology	3
Science Elective	3	Major Elective	3
Major Elective	3	Core Elective	3
Core Elective	3	EES 261 Regional Geography	3
Hst 207 or 208 American History	3		
	18		15

Fifth Semester	
Elementary Education Requirements	9
Core Elective	3
Major Electives	6
	18

Sixth Semester	
Elementary Education Requirements	6
Core Elective	3
Major Electives	9
	18

Seventh Semester	
Computer Science Elective	3
Major Electives	6
Elementary Education Requirements	6
	15

Eighth Semester	
Ed 382 Intern Teaching	15
	15

Recommended Course Sequence for Major/Certification in Secondary Education

First Semester	
Eng 101 Composition I	3
Psy 101 General Psychology	3
Core Requirements	5-7
Major Electives	3-4
CST 101 Core Studies I	1
PE 100 Activity	0
	15-18

Second Semester	
Eng 102 Composition II	3
Psy 221 Developmental Psychology	3
Core Requirements	6-8
Major Electives	3-4
PE 100 Activity	0
	15-18

Third Semester	
Ed 201 Effective Teaching	3
Core Requirements	9-10
Major Elective	3
	15-16

Fourth Semester	
Ed 202 Educational Psychology	3
Core Requirements	9-10
Major Elective	3
	15-16

Fifth Semester	
Core Requirement	3
Major Electives	6-9
Free Electives or Special Methods	3-4
Ed 354 Multicultural Ed. & Teaching Students with Special Needs	2
	14-18

Sixth Semester	
Core Requirement	3
Major Electives	6-9
Free Elective	3
Ed 357 Content Area Reading	2
	14-17

Seventh Semester	
Core Requirement	3
Major Electives	6
Free Elective	3
Special Methods	4-5
	16-17

Eighth Semester	
Ed 380 Intern Teaching	15
	15

ED 150. LIFE CAREER PLANNING **Three credits**

An exploration of the effect of societal norms, historical forces, economic conditions, and psychological factors upon individual career choices.

ED 201. EFFECTIVE TEACHING **Three credits**

This course emphasizes concepts and skills for effective teaching. These skills include instructional techniques, library research, writing, and field experiences. Students will be involved in their first practicum experience.

ED 202. EDUCATIONAL PSYCHOLOGY **Three credits**

A study of the principles of learning and the application of psychological principles in the practice of education.

Prerequisite: Psy 101 and admission to the Teacher Education Program.

ED 203. SPECIAL METHODS OF TEACHING **Four credits**

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. 30 hours practicum.

Section A — Art (Grades K-12)
Section C — Communication/English (Grades 7-12)
Section F — Foreign Languages (Grades 7-12)
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)

Prerequisite: Admission to the Teacher Education Program.

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 7-12)
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)

Prerequisite: Admission to the Teacher Education Program.

ED 290. ANALYSIS OF RESEARCH **Three credits**

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.

Prerequisite: Admission to the Teacher Education Program.

ED 301. HEALTH, PHYSICAL EDUCATION AND SAFETY IN EARLY CHILDHOOD AND ELEMENTARY EDUCATION **Two credits**

This is a study of the methods and materials appropriate for teaching health, physical education and safety. Emphasis is on understanding the developmental levels, needs and interests of children in these areas from infancy to early adolescence.

Prerequisite: Admission to the Teacher Education Program.

ED 302. CHILDREN'S LITERATURE **Two credits**
This course examines the role of literature in the lives of children from infancy through early adolescence. Emphasis is on criteria for selecting literature for the classroom and suggestions for presenting literary works and basic literary concepts in various educational settings.
Prerequisite: Admission to the Teacher Education Program.

ED 321. FOUNDATIONS OF READING **Three credits**
This course will present basic concepts of reading instruction: emphasis on the nature of the reading process; the nature of the learner; and reading as an interactive process.
Prerequisite: Admission to the Teacher Education Program.

ED 322. LANGUAGE ARTS IN EARLY CHILDHOOD AND ELEMENTARY EDUCATION **Two credits**
The purpose of this course is to inform and actively involve learners in studying a variety of concepts and methodologies for teaching the language arts at the early childhood and elementary school level. The course focuses on a broad interpretation and integration of the language arts and endorses a multidisciplinary approach to teaching and learning.
Prerequisite: Admission to the Teacher Education Program.

ED 323. MATHEMATICS IN EARLY CHILDHOOD AND ELEMENTARY EDUCATION **Two credits**
This course is designed to present a study of the research, concepts, and methodologies pertinent to the teaching of mathematics at the early childhood and elementary school levels. Emphasis is placed on 1) the use of concrete manipulatives to facilitate the learning process, 2) the knowledge necessary to guide children to become mathematically literate, and 3) the implementation of planning and instructional techniques in the teaching of mathematics.
Prerequisite: Admission to the Teacher Education Program.

ED 324. THE ARTS IN EARLY CHILDHOOD AND ELEMENTARY EDUCATION **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.
Prerequisite: Admission to the Teacher Education Program.

ED 325. METHODS AND MATERIALS OF INSTRUCTIONAL 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.
Prerequisite: Admission to the Teacher Education Program.

ED 326. SOCIAL STUDIES IN EARLY CHILDHOOD AND ELEMENTARY EDUCATION **Two credits**
A study of different theoretical approaches to early childhood and elementary social studies education with the goal of designing and practicing alternate methods of instruction in social studies.
Prerequisite: Admission to the Teacher Education Program.

ED 327. SCIENCE IN EARLY CHILDHOOD AND ELEMENTARY EDUCATION **Two credits**
Methods and curriculum for teaching science to young children (preschool to age six). Emphasis on instruction that is activity oriented and leads to the development of science process skills, problem-solving strategies, and well-developed conceptual frameworks.
Prerequisite: Admission to the Teacher Education Program.

ED 351. EDUCATIONAL MEASUREMENTS **Three credits**
A study of the characteristics, construction, and use of various educational measuring instruments commonly available in schools.
Prerequisite: Ed 202 and admission to the Teacher Education Program.

ED 352. GUIDANCE **Three credits**
An introduction to general principles and the techniques employed in guidance programs in public schools.
Prerequisite: Ed 202 and admission to the Teacher Education Program.

ED 353. TEACHING OF READING **Two credits**
The course is designed to investigate and analyze major instructional methods for teaching reading. The material is based upon current research theories and findings, and includes topics now recognized by theorists and practitioners as being most critical to developing effective school reading programs.
Prerequisite: Successful completion of Ed 321 and admission to the Teacher Education Program.

ED 354. MULTICULTURAL EDUCATION AND TEACHING STUDENTS WITH SPECIAL NEEDS **Two credits**
This course is designed to enable students to develop the knowledge base and instructional skills necessary to meet the educational needs within the classroom of students with special needs. In addition, this course will address issues of multicultural education and prepare students to develop within their students an appreciation of and respect of cultural diversity.
Prerequisite: Admission to the Teacher Education Program.

ED 357. CONTENT AREA READING **Two credits**
The course will present theories and instructional teachniques for teaching reading in the content areas.
Prerequisite: Admission to the Teacher Education Program.

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.
Prerequisite: Admission to the Teacher Education Program.

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 pre-school institution.
Prerequisite: Admission to the Teacher Education Program.

ED 370. SPECIAL PROJECTS **Three credits**
Prerequisite: Admission to the Teacher Education Program.

ED 382. INTERN TEACHING **Fifteen credits**
Students are assigned to work with selected classroom teachers. The students assume classroom responsibilities and teach under supervision. Observations and conferences are held on a regular basis with the university supervisors and the cooperating teachers. In addition, students attend weekly three-hour seminars at the University. Fee: $55.

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 chairperson is required.

ED 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.

ED 198/298/398. TOPICS IN EDUCATION **Variable credit**
A study of topics of special interest not extensively treated in regularly offered courses.

ENGLISH

Associate Professor P. Heaman, Chairperson; Professors Emeriti Lord, Rizzo; Professors Fiester, Gutin, Kaska, Terry; Associate Professors R. Heaman, O'Neill; Assistant Professors Ballentine, Bedford, Bloom, Jordan, Kemmerer, Kuhar.

Total minimum number of credits required for a major in English leading to the B.A. degree — 121.

Total minimum number of credits required for a minor — 18 (beyond Eng 101 and 102).

Wilkes University requires 121 credit hours for a B.A. degree in English. These include completion of core requirements and 39 credit hours in English including Eng 101 and 102.

The English major offers students an opportunity to develop skills in language, rhetoric, and writing, to practice creative and critical thinking, and to establish a foundation of liberal learning through the study of literature. The skills, values, and habits of thought acquired through the study of language and literature prepare students for careers in teaching, law, communications, journalism, business, government service, and other professional areas. A second major or a minor in English adds an attractive dimension to a student's major preparation in communications, business, theater, pre-law, and other pre-professional and technical programs in which effective writing, liberal learning, and critical thinking are valued.

Students who major in English may concentrate in literature or writing, or may choose a program leading to certification in elementary or secondary teaching.

Non-majors may be admitted to courses numbered 300 and above with the permission of the instructor and department chair.

Concentrations

Students who concentrate in literature are required to take 24 credit hours in literature courses numbered above 300, including one course in a major writer, one course in fiction or drama, one course in American literature, two period courses in English literature before 1900, and one seminar.

Students who concentrate in writing are required to take twelve credit hours in advanced literature courses, Eng 201, and an additional nine credit hours in other writing courses numbered 200 and above. Students in the writing concentration must submit a portfolio of written work in the senior year.

Certification

Students seeking certification as secondary public school teachers in English mush take Eng 201, 220, 225, 305, 306, 397, one course in a major author, one course in American literature, and one course in fiction or drama. Those seeking certification as elementary public school teachers should consult carefully with their advisors in planning their programs.

Minor

The minor in English requires fulfillment of core requirements in composition and literature and fifteen credits in English courses numbered 200 or above.

Honors

Qualified students who concentrate in literature may participate in an honors program, which may lead to graduation with distinction in English.

Recommended Course Sequence for a Major in English

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Core Requirements	12	Core Requirements	12
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		
	16		15
Third Semester		**Fourth Semester**	
Eng 151 Western Tradition in Literature	3	Eng 254 Survey of English Literature II	3
Eng 253 Survey of English Literature I	3	Major Elective	3
Core Requirements	9	Core Requirements	9
	15		15
Fifth Semester		**Sixth Semester**	
Major Electives*	9	Major Electives*	9
Free Electives	6	Free Electives	6
	15		15
Seventh Semester		**Eighth Semester**	
Eng 397	3	Major Elective*	3
Free Electives	12	Free Electives	12
	15		15

*Students select major electives to meet requirements in their area of concentration.

Recommended Course Sequence for a Major in English with Secondary Teacher Certification

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Core Requirements	12	Psy 101 General Psychology	3
CST 101 Core Studies I	1	Core Requirements	9
PE 100 Activity	0	PE 100 Activity	0
	16		15

Third Semester		Fourth Semester	
Eng 151 Western Tradition in Literature	3	Eng 254 Survey of English Literature II	3
Eng 253 Survey of English Literature I	3	Eng 201 Advanced Composition	3
Eng 225 Comparative Grammar	3	Major Elective	3
Ed 201 Effective Teaching	3	Ed 202 Educational Psychology	3
Core Requirement	3	Core Requirement	3
	15		15
Fifth Semester		**Sixth Semester**	
Eng 305 Teaching of English	3	Eng 306 Teaching of English	3
Major Electives	6	Eng 220 History of English	3
Core Requirement	3	Core Requirement	3
Free Elective	3	Major Electives	6
	15		15
Seventh Semester		**Eighth Semester**	
Eng 397 Seminar	3	Ed 382 Intern Teaching	15
Major Electives	6		15
Free Electives	6		
	15		

Recommended Course Sequence for a Major in English with Elementary Teacher Certification

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Psy 101 General Psychology	3	Psy 221 Developmental Psychology	3
Mathematics Elective	3	Mathematics Elective	3
Science Elective	3	Science Elective	3
Core Electives	3	Core Elective	3
PE 100 Activity	0	PE 100 Activity	0
CST 101 Core Studies I	1		
	16		15
Third Semester		**Fourth Semester**	
Ed 201 Effective Teaching	3	Science Elective	3
Ec 101 Principles of Economics I	3	Ed 202 Educational Psychology	3
Science Elective	3	Eng 254 Survey of English Literature II	3
Eng 151 Classical Tradition in Literature	3	Major Elective	3
Eng 253 Survey of English Literature I	3	EES 261 Regional Geography	3
Hst 207 or 208 American History	3		
	18		15

Fifth Semester

Elementary Ed. Requirements	9
Core Elective	3
Major Electives	6
	18

Sixth Semester

Elementary Ed. Requirements	6
Core Elective	3
Major Electives	9
	18

Seventh Semester

Computer Science Elective	3
Major Electives	6
Elementary Ed. Requirements	6
	15

Eighth Semester

Ed 382 Intern Teaching	15
	15

ENG 98. TUTORIAL IN ENGLISH AS A SECOND LANGUAGE — **One to three credits**
Individualized study in using English as a second language. Intensive practice in grammar, syntax, vocabulary, reading and writing.

ENG 99. ENGLISH AS A SECOND LANGUAGE — **Three credits**
An introduction to English for non-native speakers.

ENG 101. COMPOSITION — **Three credits**
Principles of exposition; collateral reading; writing of themes.

ENG 102. COMPOSITION — **Three credits**
Principles of exposition continued; introduction to literature; writing of themes; research paper.
Prerequisite: Eng 101.

ENG 150. THEMES IN WORLD LITERATURE — **Three credits**
Study of works by western and non-western writers that reflect enduring themes found in literature throughout the world. The literature may emphasize cultural values, intercultural relationships, global perspectives, and variety in aesthetic experiences.
Prerequisite: Eng 102.

ENG 151. THE CLASSICAL TRADITION IN LITERATURE — **Three credits**
Study of western world literature to the beginning of the eighteenth century; lectures, quizzes, conferences.
Prerequisite: Eng 102.

ENG 152. THE WESTERN TRADITION IN LITERATURE — **Three credits**
Survey of western world literature from the eighteenth century to the present.
Prerequisite: Eng 102.

ENG 153. THE AMERICAN EXPERIENCE IN LITERATURE — **Three credits**
A study of selected texts from American literature, emphasizing the multicultural heritage and nature of American writers and their works. Practice in critical reading and writing skills. Designated Writing Intensive.
Prerequisite: Eng 102.

ENG 201. ADVANCED COMPOSITION — **Three credits**
A study of rhetorical types and strategies. Reading and intensive practice. Designated Writing Intensive.
Prerequisite: Eng 102.

ENG 202. TECHNICAL AND PROFESSIONAL WRITING — **Three credits**
Practice in "real world writing." Students write on subjects associated with their major or intended careers. Students learn to perform as self-aware writers who have something to say to someone, to adapt their roles and voices to various audiences, and to marshal and present persuasively data that is relevant to a particular purpose and context. Designated Writing Intensive.
Prerequisite: Eng 102.

ENG 203. INTRODUCTION TO CREATIVE WRITING — **Three credits**
Analysis and practice of various forms of creative writing. Study of the writer's tools and choices in creating poetry, short fiction, and dramatic scenes. Designated Writing Intensive.
Prerequisite: Eng 102.

ENG 220. HISTORY OF THE ENGLISH LANGUAGE — **Three credits**
A chronological study of the origins of the English language and the systematic changes that have made it the language we speak and write today.
Prerequisite: Eng 102.

ENG 222. LINGUISTICS — **Three credits**
An introduction to the origins and structure of language and its social functions as related to politics, gender, prejudice, and advertising.
Prerequisite: Eng 102.

ENG 225. COMPARATIVE GRAMMAR — **Three credits**
A comparative and critical study of traditional, structural, and transformational-generative grammar.
Prerequisite: Eng 102.

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 281. AMERICAN LITERATURE I — **Three credits**
A study of American literature to the Civil War.
Prerequisite: Eng 102.

ENG 282. AMERICAN LITERATURE II — **Three credits**
A study of American literature from the Civil War to the present time.
Prerequisite: Eng 281.

ENG 301. LITERARY CRITICISM — **Three credits**
A study of literary theory and the techniques of analysis.
Prerequisite: Eng 254.

ENG 302. ADVANCED WORKSHOP IN POETRY — **Three credits**
An advanced workshop in writing various kinds of poems, ranging from fixed forms of haiku and sonnets to free verse. Designated Writing Intensive.
Prerequisite: Eng 203 or approval of instructor.

ENG 303. ADVANCED WORKSHOP IN FICTION **Three credits**
An advanced workshop in writing fiction, ranging from the short short story to the fully developed character narrative. Designated Writing Intensive.
Prerequisite: Eng 203 or permission of instructor.

ENG 304. ADVANCED WORKSHOP IN PLAYWRITING **Three credits**
An intensive workshop in which students create, analyze, and read original scenes and plays. Designated Writing Intensive.
Prerequisite: Eng 203 or permission of instructor.

ENG 305-306. THE TEACHING OF ENGLISH **Six credits**
A study of methods of teaching English. The first course concentrates on the methodology of teaching reading in an English class; the second on preparing and presenting lesson, unit, and semester plans for teaching composition, literature, and language. Students must concurrently work in the Writing Center a minimum of 3 hours a week.
Prerequisite: Eng 152 or 254 and permission of department chairperson.

ENG 308. RHETORICAL ANALYSIS AND NONFICTIONAL PROSE WRITING **Three credits**
The study and practice of strategies for producing responsibly written public information and persuasion through intensive preparation in argumentation and in supporting propositions for particular audiences. Designated Writing Intensive.
Prerequisite: Eng 201 or permission of instructor.

ENG 310. MEDIEVAL ENGLISH LITERATURE **Three credits**
A study of English literature to 1500, exclusive of Chaucer.
Prerequisite: Eng 254.

ENG 312. CHAUCER **Three credits**
Study of Chaucer's major works, including "The Canterbury Tales" and "Troilus and Criseyde."
Prerequisite: Eng 254.

ENG 320. TUDOR PROSE AND POETRY **Three credits**
Study of English non-dramatic literature from 1485 to 1603.
Prerequisite: Eng 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 254.

ENG 325. SHAKESPEARE **Three credits**
A study of selected plays; written reports on others not studied in class.
Prerequisite: Eng 254.

ENG 330. SEVENTEENTH CENTURY PROSE AND POETRY **Three credits**
A study of the non-dramatic literature of the period.
Prerequisite: Eng 254.

ENG 335. MILTON **Three credits**
A study of Milton's poetry and major prose.
Prerequisite: Eng 254.

ENG 341. RESTORATION & EIGHTEENTH CENTURY DRAMA **Three credits**
Study of the drama from 1600 to 1780.
Prerequisite: Eng 254.

ENG 343. THE EIGHTEENTH CENTURY **Three credits**
Study of the chief poets and essayists of the eighteenth century.
Prerequisite: Eng 254.

ENG 350. THE ENGLISH NOVEL **Three credits**
A study of the tradition and major writers of the English novel in the eighteenth and nineteenth centuries. Works by Defoe, Richardson, Fielding, Austen, the Brontes, Dickens, Eliot, and Hardy, among others, as well as critical and theoretical works, may be included.
Prerequisite: Completion of core literature requirement or permission of instructor.

ENG 354. ROMANTIC PROSE AND POETRY **Three credits**
Study of chief poets and prose writers of the Romantic Period.
Prerequisite: Eng 254.

ENG 360. VICTORIAN PROSE AND POETRY **Three credits**
Readings in Tennyson, Browning, Arnold, and other significant writers of the Victorian Age.
Prerequisite: Eng 254.

ENG 370. MODERN BRITISH POETRY **Three credits**
Study of major British poetry of the twentieth century.
Prerequisite: Eng 254.

ENG 372. MODERN NOVEL **Three credits**
Study of the major novels of the twentieth century.
Prerequisite: Eng 254.

ENG 374. MODERN DRAMA **Three credits**
Study of important dramatists, European and American, from the time of Ibsen.
Prerequisite: Eng 254.

ENG 375. CONTEMPORARY FICTION **Three credits**
A study of fiction, including the novel, short story, and novella, written since World War II. Works from English, American, and world literature may be included to reflect the diversity of contemporary literature and the emergence of post-modernist themes and forms.
Prerequisite: Completion of core literature requirement or permission of instructor.

ENG 383. AMERICAN NOVEL **Three credits**
A study of the American novel from its beginning to the present.
Prerequisite: Eng 254.

ENG 384. AMERICAN DRAMA **Three credits**
A study of the American drama from the colonial period to the present.
Prerequisite: Eng 254.

ENG 386. MODERN AMERICAN POETRY **Three credits**
Study of major movements and representative figures in modern American poetry.
Prerequisite: Eng 254.

ENG 390. PROJECTS IN WRITING **One to three credits**
Independent projects in writing for advanced students.
Prerequisite: Six credits in advanced writing courses and permission of department chair.

ENG 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 chair is required.

ENG 397. SEMINAR **(Maximum of three credits per student) One to three credits**

Presentations and discussions of selected topics.

Prerequisite: Approval of department chair is required.

ENG 399. COOPERATIVE EDUCATION **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

ENG 198/298/398. TOPICS **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 254.

FOREIGN LANGUAGES

Associate Professor Karpinich, Chairperson; Assistant Professor R. Steele.

Total minimum number of credits required for a major in Foreign Language leading to the B.A. degree — 121.
Total minimum number of credits required for a minor — 18.

Study of foreign languages and literature develops competence in another language, promotes personal and international understanding and cultivates an appreciation for the differences among cultures. Command of a foreign language enables students to advance their foreign language studies at the graduate level, or pursue a broad range of career opportunities in the fields of teaching, domestic and international commerce, government service, industry, and many others.

French, German, and Spanish are offered as major fields of study. A major in foreign language 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, 350 and 390.

In order to broaden career options, all foreign language majors are advised to combine their language studies with another discipline. Students who decide on a career in education are encouraged to study another language. All majors are urged to spend at least a semester of study abroad arranged through the Study Abroad Coordinator.

In addition to the major, students may elect to minor in French, German, or Spanish. A minor in foreign language consists of eighteen credit hours beyond 102. Students may also undertake a two-year study of Russian. Other languages such as Japanese, Italian, Latin, Hebrew, Polish and Ukrainian are offered on a demand basis (see page 156).

Students majoring in foreign language may pursue 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 Foreign Languages, Room 201, Kirby Hall.

NOTE: The minimum foreign language requirement for all incoming students is competence at the 102 or higher level. Students may be exempted from the requirement if they have completed the 102 (or equivalent) college foreign language course, or if they can demonstrate competence by scoring at the 102 level on a proficiency examination administered by the Department of Foreign Languages at the time of initial registration. Tests are available in French, Spanish, and German and, by special arrangement, in a variety of other languages.

Students who graduated from secondary schools at which the primary language of instruction was **not** English satisfy the foreign language requirement by submission of a TOEFL score adequate for admission to Wilkes.

Recommended Course Sequence for a Major in Foreign Languages (French, German and Spanish)

First Semester		Second Semester	
FL 101 Elementary I	3	FL 102 Elementary II	3
Eng 101 Composition I	3	Eng 102 Composition II	3
Core Requirements	9	Core Requirements	9
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		15
	16		

Third Semester		Fourth Semester	
FL 203 Intermediate	3	FL 204 Intermediate	3
FL 205 Conversation & Composition	3	FL 298 Studies in Language & Culture	3
Core Requirements	9	Core Requirements	9
	15		15

Fifth Semester*		Sixth Semester	
FL 207 Phonetics	3	FL 298 Studies in Language & Culture	3
FL 208 Culture & Civilization	3	FL 350 Advanced Grammar & Comp.	3
Free Electives	9	Free Electives	9
	15		15

Seventh Semester		Eighth Semester	
FL 301 Survey of Literature I	3	FL 302 Survey of Literature II	3
Free Electives	12	Free Electives	12
	15		15

*Study Abroad is required and is recommended during the junior year.

Recommended Course Sequence for Teacher Certification in Foreign Languages (French, German and Spanish)

First Semester		Second Semester	
FL 203 Intermediate I	3	FL 204 Intermediate II	3
FL 205 Conversation	3	FL 206 Advanced Conversation	3
Eng 101 Composition I	3	Eng 102 Composition II	3
Core Requirements	6	Core Requirements	6
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		15
	16		

Third Semester		Fourth Semester	
FL 207 Phonetics	3	FL 208 Culture and Civilization	3
Core Requirements	9	Core Requirements	9
Ed 201 Effective Teaching	3	Ed 202 Educational Psychology	3
	15		15

Fifth Semester*		Sixth Semester	
FL 301 Survey of Literature I	3	FL 302 Survey of Literature II	3
Psy 221 Developmental Psychology	3	Ant 270 Cultural Anthropology	3
Free Electives	9	Free Electives	9
	15		15

Seventh Semester		Eighth Semester	
FL 350 Advanced Grammer & Comp.	3	Ed 382 Intern Teaching	15
FL 390 Teaching of Foreign Language	3		15
Free Electives	9		
	15		

*Study Abroad is recommended during the junior year.

FRENCH

FR 101-102. ELEMENTARY FRENCH **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 **Three credits each**

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 **Three credits**

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 **Three credits**

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 **Three credits**
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 **Three credits**
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 **Three credits each**
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 materials.
Prerequisite: Senior standing and permission of department chairperson.

FR 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 chairperson.

FR 397. SEMINAR **(Maximum of three credits per student) One to three credits**
Presentations and discussions of selected topics.
Prerequisite: Approval of department chairperson.

FR 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)
Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

FR 198/298/398. TOPICS **Variable credit**
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

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 **Three credits**
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 **Three credits**
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 **Three credits**
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 **Three credits**
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.

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.
Prerequisite: Gr 204 or permission of instructor.

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 chairperson.

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 chairperson.

GR 397. SEMINAR **(Maximum of three credits per student) One to three credits**
Presentations and discussions of selected topics.
Prerequisite: Approval of department chairperson.

GR 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)
Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

GR 198/298/398. TOPICS **Variable credit**
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.

RUSSIAN AND OTHER LANGUAGES

The Department of Foreign Languages and Literature offers a two-year program in Russian.

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, Japanese, and Latin. Interested students should contact the department chairperson.

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 208. RUSSIAN AND EAST EUROPEAN CULTURES **Three credits**
The course is designed to introduce students to the culture and civilization of the Russian people, and to provide them with a better understanding of the Russian influence upon and the relationship with the East European neighbors — Poland, Czechoslovakia, and Hungary. The course will focus on contemporary cultural, social, and political issues of the region.

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.

203-204. **Three credits each**
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.

SPANISH

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 **Three credits each**
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 **Three credits**
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 oral 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 — **Three credits**

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.

SP 350. ADVANCED GRAMMAR AND COMPOSITION — **Three credits**

Analysis of a variety of Spanish texts and extensive writing practice. Work on special problems of grammar and idiomatic expression.

Prerequisite: Sp 204 or permission of instructor.

SP 390. THE TEACHING OF SPANISH — **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 chairperson.

SP 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 chairperson.

SP 397. SEMINAR — **(Maximum of three credits per student) One to three credits**

Presentations and discussions of selected topics.

Prerequisite: Approval of department chairperson.

SP 399. COOPERATIVE EDUCATION — **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

SP 198/298/398. TOPICS — **Variable credit**

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, and the novel of the Mexican Revolution. May be repeated for credit.

Prerequisite: Sp 301-302 or permission of instructor.

HISTORY

Professor Cox, Chairperson; Professors Emeriti Kaslas, Leach; Professors Berlatsky, Breiseth, Rodechko, Shao; Assistant Professors Berg, Hupchick, Meyers; Adjunct Faculty Serine.

Total minimum number of credits required for a major in History leading to the B.A. degree — 121.

Total minimum number of credits required for a minor — 18.

Wilkes University requires 121 credit hours for the B.A. degree in history. These include 46 credit hours in core courses and 33 credit hours in history. History 101-102, History 207-208, History 391 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.

A minor in history shall consist of 18 credit hours in courses offered by the department. These should include the 101-102 sequence and at least one course in American History.

Recommended Course Sequence for a Major in History

First Semester		Second Semester	
Hst 101 World Civilization I	3	Hst 102 World Civilization II	3
Eng 101 Composition I	3	Eng 102 Composition II	3
Core Requirements	9	Core Requirements	9
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		15
	16		

Third Semester		Fourth Semester	
Hst 207 American History I	3	Hst 208 American History II	3
Core Requirements	12	Core Requirements	9
	15	Free Elective	3
			15

Fifth Semester		Sixth Semester	
Major Electives	6	Major Electives*	6
Free Electives	9	Free Electives	9
	15		15

Seventh Semester		Eighth Semester	
Major Elective	3	Hst 391 Historiography & Research*	3
Free Electives	12	Major Elective	3
		Free Electives	9
	15		15

*Hst 391 in the sixth semester for students planning to student teach in the eighth semester.

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.
Offered every semester.

HST 105. HUMANS AND MACHINES: TECHNOLOGY AND HISTORY **Three credits**
An examination of technological changes and the manner in which they have affected the modern world, particularly the contemporary United States. Topics considered include society, environment, communications media and transportation, the city, the home, and the changing role of women in a mature industrial society.

HST 207-208. AMERICAN HISTORY **Three credits each**
A general survey of American history from colonial times to the present.
Offered every year.

HST 315. READINGS IN ANCIENT HISTORY: THE NEAR EAST **Three credits**
Selected readings on the history of the Ancient Near East, with emphasis on primary sources. Conferences with instructor and paper.
Offered in alternate years.

HST 316. READINGS IN ANCIENT HISTORY: THE CLASSICAL WORLD **Three credits**
Selected readings on the history of Greece and Rome, with emphasis on primary sources. Conferences with instructor and paper.
Offered in alternate years.

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.
Offered every third year.

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.
Offered every fourth year.

HST 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 an industrial world power since about 1850.
Offered every third year.

HST 325. AMERICAN ETHNIC HISTORY **Three credits**
A study of the institutions and problems that have characterized various immigrant, black, and Indian communities from colonial times to the present.
Offered every fourth year.

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.
Offered in alternate years.

HST 331. COLONIAL AMERICA **Three credits**
Discovery, exploration, and settlement; development of social, political, religious, and intellectual institutions; independence and political reorganization.
Offered in alternate years.

HST 332. THE NATIONAL PERIOD **Three credits**
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.
Offered in alternate years.

HST 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. 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.
Offered in alternate years.

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.
Offered in alternate years.

HST 335. THE UNITED STATES SINCE 1945 **Three credits**
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.
Offered in alternate years.

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.
Offered every third year.

HST 345. EASTERN EUROPE I **Three credits**

A study of the cultural, political and intellectual history of the Poles, Czechs, Slovaks, Croats, Slovenes and Hungarians, who occupy the northern tier of Eastern Europe. Special attention is given to the roles of the Habsburg and Russian empires in shaping the historical destinies of these peoples, and to the roots and consequences of the forces of nationalism in the region.

Prerequisite: Hst 101-102.

Offered in alternate years.

HST 346. EASTERN EUROPE II **Three credits**

A study of the cultural, political and intellectual history of the Bulgarians, Serbs, Croats, Slovenes, Albanians, Greeks, Romanians and Turks, who occupy the southern, or Balkan, tier of Eastern Europe. Special attention is given to the roles of the Ottoman Turkish, Habsburg and Russian empires in shaping the historical destinies of these peoples, and to the roots and consequences in the region of such forces as Christian-Muslim cultural interrelationships and nationalism.

Prerequisite: Hst 101-102.

Offered in alternate years.

HST 348. HISTORY OF RUSSIA **Three credits**

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.

Offered in alternate years.

HST 351. READINGS IN MEDIEVAL EUROPE **Three credits**

Selected readings on the history of Medieval Europe, with emphasis on primary sources. Conferences with instructor and paper.

Offered in alternate years.

HST 352. THE RENAISSANCE AND REFORMATION **Three credits**

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.

Offered every third year.

HST 353. AGE OF ABSOLUTISM **Three credits**

The political, social, economic, intellectual, and cultural development of Europe and dependencies from 1600 to about 1750.

Offered every third year.

HST 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 causes, events, and consequences of the French Revolution culminating in the Napoleonic Empire.

Offered every third year.

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.

Offered in alternate years.

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.

Offered in alternate years.

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.

Offered every third year.

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.

Offered every third year.

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.

Offered every third year.

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.

Offered every third year.

HST 367. HISTORY OF MODERN INDIA **Three credits**

A study of the political, social, and economic development of the Indian sub-continent since 1500.

Offered every third year.

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.

Offered in alternate years.

HST 391. HISTORIOGRAPHY AND RESEARCH **Three credits**

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.

Prerequisite: Approval of department chairman.

Offered every semester.

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 399. COOPERATIVE EDUCATION **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

HST 198/298/398. TOPICS **Variable credit**
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 University. In addition, credit may be assigned for appropriate off-campus study, work, 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 121 credits. Although there are no specific course requirements, the spirit of the Wilkes University core curriculum is to be respected.

MUSIC

Associate Professor Campbell, Chairman; Professor Emeritus Chapline; Associate Professor Emeritus Garber; Associate Professors Reiprich, Santos; Assistant Professors Barton, Chang, Flint; Adjunct Faculty Brubaha, Deas, Hannigan, Harrington, Heinze, Hrynkiw, Metzger, Nowak, Orfanella, Rinert, Sanderson, Teubner.

Total minimum number of credits required for a major in Music leading to the B.M. degree — number varies with program.

Purposes

The Music Major at Wilkes University leads to a Bachelor of Music degree. Various concentrations in applied performance studies and certification in music education (K-12) are offered.

The purposes of the program are to:

1. Give students a comprehensive exposure to all aspects of musical training relevant to their degree specialization;
2. Provide for contemporary careers in music;
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 aptitude and achievements and their general academic background, are qualified to pursue work at the university level.

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 competency-based 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 or scholar. 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 music-making, especially 20th century repertoire and practices.

Recommended Course Sequence for Bachelor of Music — Applied Voice Major

Program completed with 129 semester credits.

First Semester		Second Semester	
Mus 000 Recital Attendance	0	Mus 000 Recital Attendance	0
Mus 010 Functional Piano*	0	Mus 010 Functional Piano*	0
Mus 100 Applied Performance	2	Mus 100 Applied Performance	2
Mus 103 Comp. Musicianship I	2	Mus 104 Comp. Musicianship II	2
Mus 105 Harmonic Foundations I	3	Mus 106 Harmonic Foundations II	3
Mus 107 Analysis of Music I	3	Mus 108 Analysis of Music II	3
Mus 121 or 131 Ensemble (Minor)	1/2	Mus 121 or 131 Ensemble (Minor)	1/2
Mus 125 Ensemble (Major)	1/2	Mus 125 Ensemble (Major)	1/2
Eng 101 Composition	3	Eng 102 Composition	3
Foreign Language	3	Foreign Language	3
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		
	18		17

*Competency must be passed.

Third Semester		Fourth Semester	
Mus 000 Recital Attendance	0	Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble (Minor)*	1/2	Mus 121 or 131 Ensemble (Minor)*	1/2
Mus 125 Ensemble (Major)	1/2	Mus 125 Ensemble (Major)	1/2
Mus 200 Applied Performance	2	Mus 200 Applied Performance	2
Mus 203 Comp. Musicianship III	2	Mus 204 Comp. Musicianship IV	2
Mus 205 Harmonic Foundations III	3	Mus 206 Harmonic Foundations IV	3
Mus 207 Analysis of Music III	3	Mus 208 Analysis of Music IV	3
Mus 258 Vocal Methods	2	Mus 259 Diction	2
Foreign Language**	3	Foreign Language**	3
	16		16

*Either may be chosen.
**Equivalent of 6 non-music electives, not additional humanities core.

Fifth Semester		Sixth Semester	
Mus 000 Recital Attendance	0	Mus 000 Recital Attendance	0
Mus 125 Ensemble	1/2	Mus 125 Ensemble	1/2
Mus 128 Chamber Performance*	1	Mus 128 Chamber Performance*	1
Mus 260 Conducting I	2	Mus 261 Choral Conducting II	2
Mus 300 Applied Performance	2	Mus 300 Applied Performance	2
Mus 305 Composition/Orchestration	2	Mus 301 Recital	0
Mus 307 Pedagogy (Vocal)	3	Mus 306 20th Century Theory	2
Psy 101 General Psychology	3	Core Requirements	3
Core Requirements	3	Core Requirements	3
	16 1/2		13 1/2

*Public performance required.

Seventh Semester		Eighth Semester	
Mus 000 Recital Attendance	0	Mus 000 Recital Attendance	0
Mus 125 Ensemble	1/2	Mus 125 Ensemble	1/2
Mus 128 Chamber Performance*	1	Mus 400 Applied Performance	2
Mus 400 Applied Performance	2	Mus 401 Recital	0
Mus 407 Music Literature (Voice)	3	Mus 410 Chamber Literature	3
Free Elective	3	Free Electives	4
Core Requirements	6	Core Requirements	6
	15 1/2		15 1/2

*Public performance required.

Recommended Course Sequence for Bachelor of Music — All Applied Instrument Majors

Except Voice and Keyboard

Program completed with 129 semester credits.

First Semester		Second Semester	
Mus 000 Recital Attendance	0	Mus 000 Recital Attendance	0
Mus 010 Functional Piano	0	Mus 010 Functional Piano	0
Mus 100 Applied Performance	2	Mus 100 Applied Performance	2
Mus 103 Comp. Musicianship I	2	Mus 104 Comp. Musicianship II	2
Mus 105 Harmonic Foundations I	3	Mus 106 Harmonic Foundations II	3
Mus 107 Analysis of Music I	3	Mus 108 Analysis of Music II	3
Mus 121 or 131 Ensemble (Major)*	1/2	Mus 121 or 131 Ensemble (Major)*	1/2
Mus 125 Ensemble (Minor)	1/2	Mus 125 Ensemble (Minor)	1/2
Eng 101 Composition	3	Eng 102 Composition	3
CST 101 Core Studies I	1	Core Requirements	3
Core Requirements	3	PE 100 Activity	0
PE 100 Activity	0		
	18		17

*Mus 131, if applied string or music education major (string concentration).

Third Semester		Fourth Semester	
Mus 000 Recital Attendance	0	Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble (Major)*	1/2	Mus 121 or 131 Ensemble (Major)*	1/2
Mus 125 Ensemble (Minor)	1/2	Mus 125 Ensemble (Minor)	1/2
Mus 200 Applied Performance	2	Mus 200 Applied Performance	2
Mus 203 Comp. Musicianship III	2	Mus 204 Comp. Musicianship IV	2
Mus 205 Harmonic Foundations III	3	Mus 206 Harmonic Foundations IV	3
Mus 207 Analysis of Music III	3	Mus 208 Analysis of Music IV	3
Mus 260 Conducting I	2	Mus 261 or 262 Conducting II	2
Psy 101 General Psychology	3	Core Requirements	3
	16		16

*Mus 131, if applied string or music education major (string concentration).

Fifth Semester

Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble*	½
Mus 128 Chamber Performance**	1
Mus 300 Applied Performance	2
Mus 305 Composition/Orchestration	2
Mus 311-316 Pedagogy	3
Core Requirements	6
Free Elective	3
	17½

Sixth Semester

Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble*	½
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
	14½

*Mus 131, if applied string or music education major (string concentration).
**Public performance required.

Seventh Semester

Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble*	½
Mus 128 Chamber Performance**	1
Mus 400 Applied Performance	2
Mus 407-415 Music Lit. (major idiom)	3
Free Electives	6
Core Requirements	3
	15½

Eighth Semester

Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble*	½
Mus 400 Applied Performance	2
Mus 401 Recital	0
Mus 407-415 Music Literature (Chamber Literature)	3
Free Electives	6
Core Requirements	3
	14½

*Mus 131, if applied string or music education major (string concentration).
**Public performance required.

Recommended Course Sequence for Bachelor of Music — Applied Keyboard Major

Program completed with 128 semester credits.

First Semester

Mus 000 Recital Attendance	0
Mus 100 Applied Performance	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 (Minor)*	½
Mus 125 Ensemble (Major)	½
Eng 101 Composition	3
CST 101 Core Studies I	1
Core Requirements	3
PE 100 Activity	0
	18

Second Semester

Mus 000 Recital Attendance	0
Mus 100 Applied Performance	2
Mus 104 Comp. Musicianship II	2
Mus 106 Harmonic Foundations II	3
Mus 108 Analysis of Music II	3
Mus 121 or 131 Ensemble (Minor)*	½
Mus 125 Ensemble (Major)	½
Eng 102 Composition	3
Core Requirements	3
PE 100 Activity	0
	17

*Either one may be chosen.

Third Semester

Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble (Minor)*	½
Mus 125 Ensemble (Major)	½
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
Mus 260 Conducting I	2
Psy 101 General Psychology	3
	18

Fourth Semester

Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble (Minor)*	½
Mus 125 Ensemble (Major)	½
Mus 200 Applied Performance	2
Mus 204 Comp. Musicianship IV	2
Mus 206 Harmonic Foundations IV	3
Mus 208 Analysis of Music IV	3
Mus 213 Accompanying Practicum	1
Core Requirements	3
	15

*Either one may be chosen.

Fifth Semester

Mus 000 Recital Attendance	0
Mus 125 Ensemble	½
Mus 128 Chamber Performance*	1
Mus 214 Accompanying Practicum	1
Mus 261 or 262 Conducting II	2
Mus 300 Applied Performance	2
Mus 305 Composition & Orchestration	2
Mus 309 Pedagogy (Piano)	3
Core Requirements	6
	15½ or 17½

Sixth Semester

Mus 000 Recital Attendance	0
Mus 125 Ensemble	½
Mus 128 Chamber Performance*	1
Mus 215 Accompanying Practicum	1
Mus 261 or 262 Conducting II	2
Mus 300 Applied Performance	2
Mus 301 Recital	0
Mus 306 20th Century Theory	2
Core Requirements	6
	14½ or 16½

*Public performance required.

Seventh Semester

Mus 000 Recital Attendance	0
Mus 125 Ensemble	½
Mus 128 Chamber Performance*	1
Mus 400 Applied Performance	2
Mus 409 Keyboard Literature	3
Core Requirements	3
Free Electives	6
	15½

Eighth Semester

Mus 000 Recital Attendance	0
Mus 125 Ensemble	½
Mus 400 Applied Performance	2
Mus 401 Recital	0
Mus 410 Chamber Literature	3
Core Requirements	3
Free Electives	6
	14½

*Public performance required.

Third Semester

Mus 000 Recital Attendance	0
Mus 011 Functional Guitar**	0
Mus 121 or 131 Ensemble (Major)*	½
Mus 125 Ensemble (Minor)	½
Mus 200 Applied Performance (Major)	1
Mus 200 Applied Performance (Minor)	1
Mus 203 Comp. Musicianship III	2
Mus 205 Harmonic Foundations III	3
Mus 207 Analysis of Music III	3
Mus 254 Instrumental Methods	2
Mus 260 Conducting I	2
Psy 101 General Psychology	3
	18

Fourth Semester

Mus 000 Recital Attendance	0
Mus 011 Functional Guitar**	0
Mus 121 or 131 Ensemble (Major)*	½
Mus 125 Ensemble (Minor)	½
Mus 200 Applied Performance (Major)	1
Mus 200 Applied Performance (Minor)	1
Mus 204 Comp. Musicianship IV	2
Mus 206 Harmonic Foundations IV	3
Mus 208 Analysis of Music IV	3
Mus 255 Instrumental Methods	2
Mus 262 Instrumental Conducting II	2
Core Requirements	3
	18

Fifth Semester

Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble (Major)*	½
Med 250 Teaching of Elementary Music	2
Mus 256 Instrumental Methods	2
Mus 300 Applied Performance (Major)	1
Mus 300 Applied Performance (Minor)	1
Ed 201 Effective Teaching	3
Core Requirements	6
	15½

Sixth Semester

Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble (Major)*	½
Mus 257 Instrumental Methods	2
Med 252 Teaching of General Music	2
Mus 300 Applied Performance (Major)	1
Mus 300 Applied Performance (Minor)	1
Med 102 Practicum in Music Education	1
Ed 202 Educational Psychology	3
Core Requirements	6
	16½

*Mus 131, if applied string or music education major (string concentration).
**If elementary or general music concentration.

Seventh Semester

Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble (Major)*	½
Med 351 Teaching of Sec. Choral Music**	2
Med 352 Teaching of Sec. Instr. Music**	2
Mus 400 Applied Performance (Major)	2
Med 360 Intern Teaching in Music	11
	17½

Eighth Semester

Mus 000 Recital Attendance	0
Mus 121 or 131 Ensemble (Major)*	½
Mus 400 Applied Performance (Major)	2
Mus 401 Recital	0
Core Requirements	9
Free Elective	3
	14½

*Mus 131, if applied string or music education major (string concentration).
**Accelerated courses.

Music

MUS 000. RECITAL ATTENDANCE — **No credit**

This course is required each semester for all music majors. Degree requirement for graduation.

MUS 010. FUNCTIONAL PIANO — **No credit**

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 — **No credit**

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 — **One credit or two credits**

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.

Prerequisite: Consent of instructor.

MUS 100. Freshman Level
MUS 200. Sophomore Level
MUS 300. Junior Level
MUS 400. Senior Level
MUS 301. Junior Recital — No credit
MUS 401. Senior 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 — **Three credits**

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 — **Three credits**

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 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.

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 **Two credits**
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.

MUS 125. CHORUS **One-half credit**
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.

MUS 127. JAZZ ENSEMBLE **One-half credit**
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 **One credit**
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.
Prerequisites: Mus 200, junior standing, or consent of instructor.

MUS 131. UNIVERSITY ORCHESTRA **One-half 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**
A study of the techniques concerned with solo, chamber, and group accompanying. Required of all keyboard applied performance majors.
Prerequisites: Mus 101, 103-106.

MUS 213-215. ACCOMPANYING PRACTICUM I-III **One credit**
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.

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 260-262. 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 conducting patterns, gestures, and rehearsal methodology will be studied. The emphasis will be on actual laboratory experience.

MUS 260. Introduction to Conducting
MUS 261. Choral Conducting II
MUS 262. Instrumental Conducting II

Prerequisites: 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.
Prerequisites: Mus 206 and 208.

MUS 306. 20th CENTURY THEORY **Two credits**
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.
Prerequisites: Mus 204, 206, and 208, junior standing, or consent of instructor.

MUS 307-316. MUSIC PEDAGOGY **Three 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 areas:

MUS 307. Voice Pedagogy
MUS 309. Piano Pedagogy
MUS 311. Woodwind Pedagogy
MUS 313. Brass Pedagogy
MUS 315. String Pedagogy
MUS 316. Percussion Pedagogy

Prerequisites: Mus 200, 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 chairperson.

MUS 397. SEMINAR **One to three credits**
Presentation and discussion of selected topics.
Prerequisite: Approval of department chairperson.

MUS 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)
Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

MUS 407-415. MUSIC LITERATURE **Three credits**

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 413. Brass Literature
MUS 414. String Literature
MUS 415. Percussion Literature

Prerequisites: Mus 205-208, senior standing in music, or consent of instructor.

Music Education

MED 250. TEACHING OF ELEMENTARY MUSIC **Two credits**

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 suitable materials for classroom use, arranging and adapting existing music for the Orff instrumentarium. A survey and evaluation of appropriate resource materials.

MED 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.

MED 254-258. MUSIC METHODS **Two credits**

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.

MED 254. Woodwinds Methods
MED 255. Brass Methods
MED 256. String Methods
MED 257. Percussion Methods
MED 258. Vocal Methods

Prerequisites: Mus 100, 103-106, sophomore standing, or consent of instructor.

MED 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.

Prerequisites: Mus 250, 252, 260 and 261, junior standing, or consent of instructor.

MED 352. TEACHING OF SECONDARY INSTRUMENTAL MUSIC **Two credits**

An examination of the administration and logistics of a secondary instrumental music program. A systematic development of teaching and rehearsal techniques, planning, and evaluation.

Prerequisites: Mus 250, 252, 260 and 262, junior standing, or consent of instructor.

NURSING

Associate Professor Kolanowski, Chairperson; Associate Professors Bohlander, Castor, Druffner, Grabo, Saueraker, Schreiber, Sheer, Telban, Zack; Assistant Professors Crowley, Kaminski, Merrigan, Ward, Zielinski; Visiting Assistant Professor Bantell; Adjunct Faculty Babcock, Craig; Russin, Director of Learning Resource Center.

Total minimum number of credits required for a major in Nursing leading to the B.S. degree — 130.

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 Learning Resource 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 chairperson 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.

Nursing courses are introduced in the sophomore year. Satisfactory clinical performance is an essential component of each nursing course. A grade of 2.00 is required in **all** clinical nursing courses to progress through the program. A student may repeat one nursing course without prejudice. A subsequent failure of any clinical nursing course is deemed sufficient cause for dismissal from the program.

A student may be required to submit, at any time, to a health evaluation by the University physician, or nurse practitioner, if evident limitations interfere with the student's practice or learning.

In addition to fulfilling the academic requirements of the University, 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.

Recommended Course Sequence for a Major in Nursing

First Semester		Second Semester	
Bio 115 Human Anatomy and Physiology I	4	Bio 116 Human Anatomy and Physiology II	4
Chm 111 Intro. to Chemical Reactions and Principles	4	Chm 130 Organic and Biological Chemistry	4
Eng 101 Composition I	3	Eng 102 Composition II	3
Psy 101 General Psychology or Soc 101 Intro. to Sociology or Ant 101 Intro. to Anthropology*	3	Psy 101 General Psychology or Soc 101 Intro. to Sociology or Ant 101 Intro. to Anthropology*	3
PE 100 Activity	0	Core Requirement or Soc 275	3
CST 101 Core Studies I	1	PE 100 Activity	0
		Mth Competency**	0
	15		17

Third Semester		Fourth Semester	
Bio 113 Microbiology	4	Nsg 202 Nursing Care of the Young Client	8
Nsg 200 Nutrition	3	Mth 150 Elementary Stats or Core Requirement***	3
Nsg 201 Introduction to Nursing	6	Psy Elective	3
Soc 275 Sociology of Minorities or Core Requirement	3	Core Requirement	3
	16		17

Fifth Semester		Sixth Semester	
Nsg 203 Nursing Care of the Adult Client	8	Nsg 204 Nursing Care of the Adult Client II	8
Mth 150 Elementary Stats or Core Requirement***	3	Core Requirement	3
Elective	3	Core Requirement or Elective	3
	14	Core Requirement or Elective	3
			17

Seventh Semester		Eighth Semester	
Nsg 301 Nursing Care of the Older Adult Client	8	Nsg 302 Senior Practicum	8
Nsg 303 Contemporary Issues in Nursing or Elective/Core	3	Nsg 303 Contemporary Issues in Nursing or Core Requirement	3
Nsg 305 Intro. to Nursing Research	3	Elective	3
Elective	3	Elective	3
	17		17

*Please note students must take both Psy 101 and Soc/Ant 101 during their freshman year.
**Math competency must be obtained during the freshman year. It is a prerequisite to Nsg 201.
***Please note: Math 150 is required and prerequisite to Nsg 305.

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.
Corequisite: Nsg 201.

NSG 201. INTRODUCTION TO NURSING **Six credits**
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: $80.
Prerequisites: Bio 116, Chm 130, Psy 101, Soc 101, Mth competency.
Corequisites: Nsg 200, Bio 113, Soc 275.

NSG 202. NURSING CARE OF THE YOUNG CLIENT **Eight credits**
Basic concepts introduced in Nsg 201 are utilized in assisting young clients 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: $80.
Prerequisites: 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 adult clients to maintain optimum wellness and to resolve selected health problems. Nursing theory as related to the biopsychosocial aspects of adult care is correlated with clinical practice in a variety of 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: $80.
Prerequisite: Nsg 202.

NSG 204. NURSING CARE OF THE ADULT CLIENT II **Eight credits**
The nursing process is utilized in assisting adult clients to maintain optimum wellness and to resolve selected medical, surgical, and mental health problems. Nursing theory as related to the biopsychosocial aspects of adult care is correlated with clinical practice in a variety of 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: $80.
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 terms.

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.
Prerequisites: Junior and Senior Nursing students and Registered Nurses.

NSG 299. NURSING FORUM I **Six credits**
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 biological, psychological, and social aspects of client health is correlated with clinical practice in a variety of health care settings. Hours weekly: 5 hours class, 3 hours clinical practice. Fee: $80.
Prerequisites: RN status or NCLEX eligibility, Eng 101-102.

NSG 301. NURSING CARE OF THE OLDER ADULT CLIENT **Eight credits**
The nursing process is utilized in the care of the older adult client. Topics have been chosen which reflect the normative changes accompanying the aging process as well as the interactive effects of multiple biological, psychological, and social problems. Clinical practice, emphasizing disease prevention, health promotion, maintenance and restoration, in long-term care settings, is correlated with theory presentation. Hours weekly: 4 hours class, 12 hours clinical practice. Fee: $80.
Prerequisite: Nsg 204.

NSG 302. SENIOR PRACTICUM **Eight credits**
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 Coordinator. Hours weekly: 2 hours class, 18 hours clinical practice in a variety of settings. Fee: $80.
Prerequisites: Nsg 301 and Nsg 305.

NSG 303. CONTEMPORARY ISSUES IN NURSING **Three credits**
This course examines the influences on the role and functioning of the professional nurse. Current issues and long-term trends are analyzed for their effects on nursing and health care. The nursing profession is studied, using formats which foster critical thinking and communication skills. Major emphasis is placed on nursing as an independent health-care profession; interdependent and collaborative relationships with other health professions are also examined.
Prerequisite: Nsg 204.

NSG 305. INTRODUCTION TO NURSING RESEARCH **Three credits**
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.
Prerequisites: Nsg 204, Mth 150.

NSG 307. PHYSICAL ASSESSMENT **Three credits**
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.
Prerequisites: Junior and Senior Nursing majors or RN students.

NSG 395-396. INDEPENDENT STUDY **One to three credits**
Independent study for advanced students in nursing under the direction of a staff member.
Prerequisites: 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 399. COOPERATIVE EDUCATION **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

NSG 198/298/398. TOPICS IN NURSING **Variable credit**

A study in topics of special interest that are not exclusively treated in regularly offered courses.

PHILOSOPHY

Professor Kay, Chairperson; Professor Emeritus Williams; Assistant Professors Jacoby, Paul.

Total minimum number of credits required for a major in Philosophy leading to the 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 chairperson. The typical program consists of 30 credit hours in philosophy, including Phl 101, Phl 152, and Phl 201.

The minor in philosophy consists of 18 credit hours, including Phl 101 (3 credit hours), Phl 152 (3 credit hours), and either Phl 201 or 202 (3 credit hours).

Recommended Course Sequence for a Major in Philosophy

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Phl 101 Introduction to Philosophy	3	Phl 152 Introduction to Logic	3
Core Requirements	9	Core Requirements	9
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		
	16		15

Third Semester		Fourth Semester	
Major Elective	3	Major Elective	3
Core Requirements	6	Core Requirement	3
Free Electives	6	Free Electives	9
	15		15

Fifth Semester		Sixth Semester	
Major Electives	3	Major Electives	3
Core Requirements	3	Core Requirements	3
Free Electives	9	Free Electives	9
	15		15

Seventh Semester		Eighth Semester	
Major Electives	6	Major Electives	6
Free Electives	9	Free Electives	9
	15		15

PHL 101. INTRODUCTION TO PHILOSOPHY **Three credits**

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 150. CRITICAL THINKING **Three credits**

An introduction to informal logic. Recognition and evaluation of arguments; distinguishing fallacies from general rules of inference; causal reasoning; and the application of reasoning skills in related areas, such as science or law.

PHL 152. INTRODUCTION TO SYMBOLIC LOGIC **Three credits**

An introduction to the nature of logical systems and deductive reasoning. The study of the syntax and semantics of formal languages; testing arguments for validity; and an examination of other important logical notions, such as proof and consistency.

PHL 201. ORIGINS OF WESTERN THOUGHT **Three credits**

The development of Western philosophical thought from its beginnings in the Greek world to early Christian thought. Philosophers to be studied may include the Pre-socratics, Plato, Aristotle, Plotinus, the Stoics, Epicurus, Sextus Empiricus, and St. Augustine.

PHL 202. MODERN PHILOSOPHY: DESCARTES TO KANT **Three credits**

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 or permission of instructor.

PHL 210. ETHICAL THEORY **Three credits**

A study of classical and contemporary ethical theories, the problems that they raise and the problems they are intended to solve. The theories of Plato, Aristotle, Kant, Hume, and Mill will be examined as well as more recent contributions by Ross, Harman, Moore, Ayer, Stevenson, and Hare. Questions addressing ethical relativism, the relationship of religion to ethics, skepticism, moral realism, egoism, and value judgments will also be discussed.

Prerequisite: Phl 101 or permission of instructor.

PHL 212. BUSINESS ETHICS **Three credits**

An enquiry into the ethical issues that arise in the context of business. Major ethical theories such as those of Bentham, Mill, Kant, and Ross are examined in such areas of concern as discrimination in the work place, testing and employee privacy, consumer deception, and environmental issues. Theories of justice such as those of Nozick and Rawls are used to clarify such problems as corporate responsibility in plant relocation and overall economic justice.

Prerequisite: Phl 101 or permission of instructor.

PHL 214. MEDICAL ETHICS **Three credits**

A selection of important issues facing health care providers, and society in general, are examined. Topics include euthanasia, abortion, doctor-patient relationships, the use and misuse of information, research on human and non-human animals, informed consent, patients' rights, truthfulness and the right to know, conflicts of obligations, the right to health care, the allocation of resources, mandatory testing for AIDS, and the use of genetic and reproductive technologies.

Prerequisite: Phl 101 or permission of instructor.

PHL 216. PHILOSOPHY OF ART **Three credits**

A critical examination of the basic assumptions involved with art. These will include such issues as what constitutes a work of art, what is the purpose of art, the relationship, if any, between art and truth, and what is so-called artistic creativity. A wide range of aesthetic views will be evaluated ranging from those of Plato and Aristotle to the more recent ones of Tolstoy, Bell, Hampshire, and Kennick.

Prerequisite: Phl 101 or permission of instructor.

PHL 218. PHILOSOPHY OF LAW **Three credits**

A careful examination of the main philosophical issues in the area of jurisprudence such as the nature and validity of law, the purpose of law, and how law is to be enforced. A study of major court rulings will reveal the complex nature of legal reasoning, involving the issues of the place of *mens rea* and responsibility in court decisions. Among the major philosophers that will be studied are Aquinas, Austin, Kelsen, Hart, and Dworkin.

Prerequisite: Phl 101 or permission of instructor.

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 permission of instructor.

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.

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.

PHL 230. SOCIAL AND POLITICAL PHILOSOPHY **Three credits**

Social and political institutions as seen by such classic critics as Plato, Aristotle, Hobbes, Locke, Hume, Rousseau, Bentham, and others. More recent views such as those of Marx, Rawls, and Nozick will also be covered. Special attention is paid to the related questions of the role of the state and the relationship between the individual and the state.

Prerequisite: Phl 101 or permission of instructor.

PHL 232. PHILOSOPHY OF HISTORY **Three credits**

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 permission of instructor.

PHL 250. PHILOSOPHY OF SCIENCE **Three credits**

A critical examination of various issues concerning scientific thought. Topics may include the nature of science, distinguishing science from pseudo-science, the nature of theories, scientific explanation, space and time, causality, the problem of induction, laws of nature, and the reality of theoretical entities.

Prerequisite: Phl 101 or permission of instructor.

PHL 298. TOPICS **Three credits**

The study of a topic of special interest not extensively treated in other courses. Topics chosen according to interest of instructor. Because of its variable content, this course may be repeated for credit.

Prerequisite: Phl 101 or permission of instructor.

PHL 301. STUDIES IN GREEK PHILOSOPHY **Three credits**

A critical examination of a single major philosopher or text from the period of classical Greek philosophy. Because of its variable content, this course may be repeated for credit.

Prerequisite: Phl 201 or permission of instructor.

PHL 302. STUDIES IN MODERN PHILOSOPHY **Three credits**

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.

Prerequisite: Phl 202 or permission of instructor.

PHL 304. TWENTIETH CENTURY ANALYTIC PHILOSOPHY **Three credits**

Major figures and movements in analytic philosophy since 1900. Philosophical positions discussed may include logical atomism, logical positivism, ordinary language philosophy, and naturalized epistemology. Philosophers to be studied may include Russell, Frege, Moore, Wittgenstein, Ayer, Carnap, Quine, and Putnam.

Prerequisite: Phl 101 or 150 or 152 or permission of instructor.

PHL 310. STUDIES IN MORAL PHILOSOPHY **Three credits**
An intensive examination of a major ethical theory or a significant problem such as ethical relativism. Because of its variable content, this course may be repeated for credit.
Prerequisite: Phl 210 or permission of instructor.

PHL 320. ADVANCED PHILOSOPHY OF RELIGION **Three credits**
An intensive examination of a major problem or figure in the philosophy of religion. Because of its variable content, this course may be repeated for credit.
Prerequisite: Phl 220 or permission of instructor.

PHL 330. PHILOSOPHY OF MIND **Three credits**
A critical examination of one or more problems concerning the nature of the mind. Possible topics include the traditional mind-body problem, consciousness, intentionality, the self, personal identity, and issues in philosophical psychology.
Prerequisite: Phl 101 or permission of instructor.

PHL 340. METAPHYSICS **Three credits**
A critical examination of one or more problems concerning the nature of reality, dealt with by classical and/or contemporary philosophers. Problems to be considered may include mind and body, space and time, substance, free will, realism and idealism, the existence of God, causality, and the nature of universals.
Prerequisite: Phl 101 or permission of instructor.

PHL 352. SYMBOLIC LOGIC **Three credits**
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 concept of a formal system and axiomatization, as well as properties of deductive systems such as consistency, completeness, independence of axioms, and other formal properties.
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 atheistic, 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: Phl 101 or permission of instructor.

PHL 395-396. INDEPENDENT RESEARCH **One to three credits**
Independent study and research for advanced students. A research paper at a level significantly beyond a term paper is required.
Prerequisite: Approval of department chairperson.

PHL 397. SEMINAR **One to three credits**
Presentations and discussions of selected topics.
Prerequisite: Approval of department chairperson is required.

PHL 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)
Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

PHYSICAL EDUCATION

Assistant Professor Wingert, Chairperson; Professor Reese; Associate Professors Saracino, Schmidt; Assistant Professor G. Meyers.

The Physical Education Department is viewed as both a vital and integral part of the University's comprehensive educational experience, central to the education of the whole person. The department is committed to maintaining an active role in teaching and promoting wellness and activity courses for students.

Students are required to complete two semesters of Physical Education, each semester being a different learning experience. At least one Physical Education experience must be in a wellness course.

It is recommended that students fulfill their two semesters of Physical Education in the first two years of their program. Exceptions to the Physical Education requirement are made to veterans of the military service who must submit a copy of their honorable discharge from the service to the Registrar's Office, and to students who have medical excuses which are submitted to and verified by the University Health Services and the Registrar.

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. WELLNESS WEIGHT TRAINING **No credit**
A wellness course designed to identify physical fitness levels, health risk factors, and lifestyles of students. This course provides instruction in basic techniques of weight training. Individual weight training programs are developed to maintain muscular strength and endurance of the major muscle groups. Students will be required to attend three wellness lectures.

PE 120. BOWLING **No credit**
Designed to teach the basic techniques of bowling; grip, stance, footwork, delivery, and approach to foul line, release and follow through, rules and scorekeeping procedures.

PE 125. BADMINTON **No credit**
This course provides instruction in the fundamental skills of badminton with emphasis on play, rules, and strategy.

PE 130. WELLNESS AEROBIC DANCE **No credit**
A wellness course designed to identify physical fitness levels, health risk factors, and lifestyles of students. The intention of this course is to develop cardiorespiratory conditioning, muscle tone, and muscle strength through high impact dance and exercise movements performed to music. Students will be required to attend three wellness lectures.

PE 131. WELLNESS AEROBIC WALKING **No credit**
A wellness course designed to identify physical fitness levels, health risk factors, and lifestyles of students. The intent of this course is to develop cardiorespiratory conditioning and muscle tone through low impact aerobic activities. Students will be required to attend three wellness lectures.

PE 135. WELLNESS AEROBIC FITNESS No credit

A wellness course designed to identify physical fitness levels, health risk factors, and lifestyles of students. The intent of this course is to provide group programs to achieve cardiorespiratory conditioning, muscle tone, and muscle strength through various aerobic activities. Students will be required to attend three wellness lectures.

PE 136. WELLNESS FITNESS ACTIVITIES — JOGGING No credit

A wellness course designed to identify physical fitness levels, health risk factors, and lifestyles of students. The intent of this course is to develop a self-styled jogging program. Emphasis is placed on warm-up, jogging, and cool-down. Students will be required to attend three wellness lectures.

PE 137. WELLNESS AEROBIC FITNESS — WALKING No credit

A wellness course designed to identify physical fitness levels, health risk factors, and lifestyles of students. The intent of this course is to develop a self-styled walking program. Emphasis is on warm-up, walking, and cool-down. Students will be required to attend three wellness lectures.

PE 140. 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 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 course.

PE 165. SWIM INSTRUCTION No credit

Water skills, safety, self-reliance, precautions are developed along with swimming stroke instruction.

PE 166. LIFEGUARD TRAINING No credit

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.

PE 167. WELLNESS RECREATIONAL SWIMMING No credit

A wellness course designed to identify physical fitness levels, health risk factors, and lifestyles of students. The intent of this course is to develop and maintain fitness components through swimming. Students will be required to attend three wellness lectures.

PE 170. SKIING No credit

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 No credit

Designed to teach fundamental skills, terminology, mechanics of offensive and defensive movements, strategy, and rules of play.

PE 180. VOLLEYBALL No credit

This course teaches the basic skills of volleyball. Serves, sets, bump passes, spikes, and rules of play are emphasized.

PE 198. TOPICS IN PHYSICAL EDUCATION No credit

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 university curriculum.

PE 210. CONTEMPORARY HEALTH CONCEPTS Two credits

A study of present-day health concepts. The course undertakes to help students enjoy maximum health and happiness through a better understanding of themselves, their relationships with other people, and their functions 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.

PE 310. TREATING ATHLETIC INJURIES Three credits

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. Fee for course.

PE 315. EMERGENCY CARE TECHNIQUES Three credits

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 399. COOPERATIVE EDUCATION One to six credits

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

PE 298/398. TOPICS IN PHYSICAL EDUCATION Variable credit

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.

PSYCHOLOGY

Professor Charnetski, Chairperson; Professors Bellucci, Riley; Associate Professors Bohlander, Stetten; Assistant Professors Adair, Dias; Adjunct Faculty Kanner.

Total minimum number of credits for a major in Psychology leading to the 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.

It is required that the student take at least one course from each of the Interest Areas below.

Interest Area I – Research
Psy 211 Experimental Psychology
Psy 213 Physiological Psychology
Psy 214 Sensory and Perceptual Processes

Interest Area II – Theoretical
Psy 203 Contemporary Psychological Theories
Psy 206 History of Psychology
Psy 221 Developmental Psychology
Psy 232 Human Behavior
Psy 255 Social Psychology
Psy 311 Comparative Psychology
Psy 331 Abnormal Psychology

Interest Area III – Applied
Psy 242 Psychological Tests
Psy 243 Industrial Psychology
Psy 245 Clinical Psychology
Psy 325 The Exceptional Individual

Students who choose to minor in psychology are required to take Psy 101 and Psy 215 and an additional twelve credits in advanced psychology courses.

Recommended Course Sequence for a Major in Psychology

First Semester		Second Semester	
Psy 101 General Psychology*	3	Major Elective	3
Eng 101 Composition I	3	Eng 102 Composition II	3
Core Requirements	9	Core Requirements	9
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		15
	16		

Third Semester		Fourth Semester	
Major Elective	3	Major Elective	3
or Psy 215 Research and Design*		or Psy 215 Research and Design*	
Core Requirements	12	Core Requirements	9
	15	Free Elective	3
			15

Fifth Semester		Sixth Semester	
Psy 211 Experimental Psychology I †	3	Major Electives	6
Major Elective	3	and/or Psy 215 Research and Design*	
or Psy 215 Research and Design*		Free Electives	9
Free Electives	9		15
	15		

Seventh Semester		Eighth Semester	
Psy 395 Independent Research †	3	Psy 396 Independent Research †	3
Cooperative Education †	6	Free Electives	13
Free Electives	6		16
	15		

*Required
†Recommended

PSY 101. GENERAL PSYCHOLOGY **Three credits each**
An introduction to the field of psychology with emphasis on objective 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.
Prerequisite: Psy 101.

PSY 211. EXPERIMENTAL PSYCHOLOGY **Three credits each**
A lecture and laboratory course designed to familiarize the student with the methods and the results of modern psychological research. The course includes a study of several of the famous experiments in the field of psychology. Also included is practice with the older as well as the more recent methods of experimental research. Lecture and laboratory. Fee: $40.
Prerequisite: Psy 215.

PSY 213. PHYSIOLOGICAL PSYCHOLOGY **Four credits**
A study of the physiological mechanisms mediating behavior. Emphasis on the structure and function of the nervous system and the neurophysiological bases of sensory processes, emotion, abnormal behavior, sleep, learning and memory. Laboratory experience includes brain dissection, small animal experimentation, and demonstrations of neurosurgical technique. Fee: $20.
Prerequisites: Psy 101; junior or senior standing.

PSY 214. SENSORY AND PERCEPTUAL PROCESSES **Three credits**
Principles 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.

PSY 221. DEVELOPMENTAL PSYCHOLOGY **Three credits**
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 **Three credits**
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 **Three credits**
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 **Three credits**
A survey of the applied areas of personnel, organizational, human factors, and consumer psychology.
Prerequisite: Psy 101.

PSY 245. CLINICAL PSYCHOLOGY **Three credits**
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.
Prerequisites: Psy 242 and Psy 331.

PSY 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.
Prerequisites: Soc 101 or Ant 101 or Psy 101, or approval of instructor.

PSY 311. COMPARATIVE PSYCHOLOGY **Three credits**
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 **Three credits**
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 observation of three types of exceptionality: the mentally defective, gifted, and sensory-motor impaired.
Prerequisites: Psy 101 and Psy 221.

PSY 331. ABNORMAL PSYCHOLOGY **Three credits**
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 **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 chairperson is required.

PSY 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.

PSY 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)
Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

PSY 198/298/398. TOPICS IN PSYCHOLOGY **Variable credit**
A study in topics of special interest not extensively treated in regularly offered courses.

THEATER ARTS

Associate Professor Campbell, Chairperson; Professors Emeritus Groh, Holm; Associate Professor O'Neill, Director of Theater; Assistant Professor Swanson; Adjunct Faculty Chapline.

Total minimum number of credits required for a major in Theater Arts leading to the B.A. degree — 121.

Total minimum number of credits required for a minor — 18.

The goal of the Theater Arts program at Wilkes University is to develop the skills, crafts, and imagination of its students within the liberal arts context. The program is a strong pre-professional curriculum requiring 48 credit hours in the major distributed in the areas of dramatic literature, theater history, play analysis, acting, directing, scenic design, lighting and production. This broad preparation at the undergraduate level develops a foundation for any theater specialization, and the best theater artists — be they actors, directors, designers, or playwrights — almost always have this kind of educational background.

Students having an interest in music and dance may elect courses in either area, or both, thereby further enhancing their preparation for professional work.

The Theater Arts program is housed in the Dorothy Dickson Darte Center for the Performing Arts, a fully equipped, professional facility, unsurpassed in its ability to provide for the needs of a major program in theater.

Recommended Course Sequence for a Major in Theater Arts

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
THE 143 Stagecraft	3	THE 142 Speech for the Stage	3
THE 241 Acting I or Core Requirement	3	Core Requirements	6
Core Requirements	6	THE 141 Theater Laboratory	1
CST 101 Core Studies I	1	Free Elective	3
PE 100 Activity	0	PE 100 Activity	0
	16		16

Third Semester		Fourth Semester	
THE 240 Play Structure and Criticism	3	THE 344 Scene Design I	3
THE 241 Acting I or Core Requirement	3	THE 242 Acting II or Theater Elective	3
THE 342 Lighting for the Stage	3	Eng 152 World Literature II	3
Eng 151 World Literature I	3	Core Requirements	6
Core Requirement	3	THE 141 Theater Laboratory	1
THE 141 Theater Laboratory	1		
	16		16

Fifth Semester		Sixth Semester	
THE 340 Theater History I	3	THE 341 Theater History II	3
THE 345 Directing I	3	THE 346 Directing II or Theater Elective	3
Dramatic Literature Requirement	3	Core Requirements	9
Core Requirements	6	THE 141 Theater Laboratory	1
THE 141 Theater Laboratory	1		
	16		16

Seventh Semester		Eighth Semester	
THE 397 Senior Seminar	3	THE 348 Workshop or Theater Elective	3
Dramatic Literature Requirement	3	Free Electives	9
Core Requirement	3		12
Free Elective	3		
THE 141 Theater Laboratory	1		
	13		

Minor in Theater Arts

Required Course:

THE 143 Stagecraft

Electives:

Five of the following:

THE 142 Speech for the Stage
THE 240 Fundamentals of Play Structure and Criticism
THE 241 Acting I
THE 242 Acting II
THE 340 Theater History I
THE 341 Theater History II
THE 342 Lighting for the Stage
THE 344 Scene Design
THE 345 Directing I
THE 346 Directing II

THE 140. APPROACH TO THEATER **Three credits**

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.

THE 141. THEATER LABORATORY **One credit**

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 majors every semester. May be repeated for a total of six hours.

THE 142. SPEECH FOR THE STAGE **Three credits**

Instruction and exercises in vocal development for the stage, including diction, delivery, and interpretation. Laboratory sessions.

THE 143. STAGECRAFT **Three credits**

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.

THE 144. DEPARTMENT PRACTICUM IN THEATER PRODUCTION **One to two credits**

The Department Practicum in theater production may be taken for one to two credits per semester with the total not to 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 advisor or instructor of the activity, has the authority to approve or reject any contract for credit under this designation. Approval of credit must be by advisor and Department Chairperson.

THE 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.

Prerequisite: Eng 102.

THE 241. ACTING I **Three credits**

Basic acting techniques. Creating a variety of characters for the stage through the use of vocal interpretation, physical movement, improvisation, and theater games.

THE 242. ACTING II **Three credits**

An introduction to the major theories, aims, and styles of acting through performing various roles and monologues in selected dramatic scenes.

Prerequisite: THE 241.

THE 340. THEATER HISTORY I **Three credits**

A survey of the historical development and background of theatrical art from ancient times through the seventeenth century.

THE 341. THEATER HISTORY II **Three credits**

A survey of the historical development and background of theatrical art from the eighteenth century to the present.

Prerequisite: THE 340.

THE 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.

Prerequisite: THE 141.

THE 344. SCENE DESIGN **Three credits**

The nature and function of scenic art with emphasis on contemporary theories and techniques.

Prerequisite: THE 141.

THE 345. DIRECTING I **Three credits**

An introduction to the principles of directing including play selection, composition, casting, blocking, and rehearsing. Class and workshop.

Prerequisite: THE 141 or departmental permission.

THE 346. DIRECTING II **Three credits**

A study of special problems in directing. Students will prepare a prompt book, critique productions, and direct a one-act play.

Prerequisite: THE 345.

THE 347. CHILDREN'S THEATER **One to three credits**

Methods of interpreting and performing plays for young audiences. Class projects will evolve into theatrical performances for children.

Prerequisites: THE 143 and 241, or permission of the department.

THE 348. THEATER WORKSHOP **Three credits**

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.

Prerequisite: Permission of the department.

THE 395-396. INDEPENDENT RESEARCH **One to three credits**

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

THE 397. SENIOR SEMINAR **Three credits**

Discussion, research, and exploration of a selected topic in conjunction with a departmental theater production. Presentations and a research project.

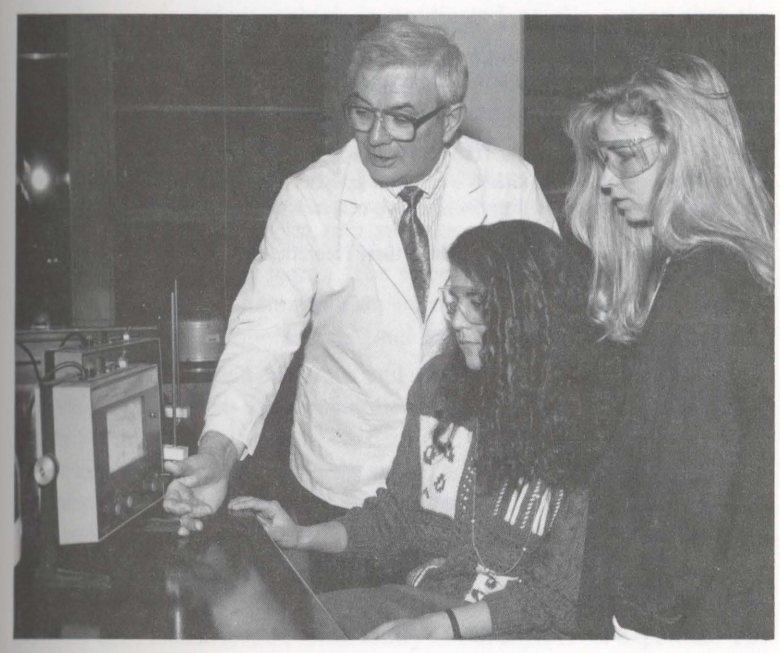
THE 198/298/398. TOPICS **One to three credits**

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

THE 399. COOPERATIVE EDUCATION **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.



WOMEN'S STUDIES

Women's Studies Coordinating Committee: Professors Elmes-Crahall, Garr, P. Heaman, Kaminski, Taylor.

Total minimum number of credits required for a minor — 18.

Women's Studies is an interdisciplinary program in which students may earn a minor by taking Women's Studies 101 and fifteen additional credit hours in a variety of designated courses offered by various departments and approved by the Women's Studies Coordinating Committee. Courses that may count toward the minor are typically offered in the Departments of Business Administration and Economics, Communications, English, History, Foreign Languages, Nursing, Political Science, and Sociology, among others. As part of the requirement for the minor, students take a seminar or independent study (395, 396 or 397) in which they undertake an extensive research paper or project and present the results in a colloquium of students and faculty participating in the Women's Studies Program.

The minor is designed to add a professionally and personally valuable concentration for students majoring in such areas as business, sociology, English, communications, and nursing, as well as for students in pre-medical and pre-law courses of study.

Students who intend to declare a minor in Women's Studies should take WS 101 before taking more than two other courses offered in the minor.

Students who select the minor should apply to a member of the Women's Studies Coordinating Committee for an advisor who will aid them in the selection of courses.

WS 101. INTRODUCTION TO WOMEN'S STUDIES **Three credits**

Introduction to Women's Studies is a lecture/discussion course. It introduces students to the theoretical assumptions and historical development of feminist thought. It examines a variety of contemporary issues related to race, gender, class, culture, sexuality, the family, reproduction, language and discourse in the light of these theoretical assumptions. Designated Writing Intensive.

Offered every fall semester.

The School of Science and Engineering

Umid R. Nejib, Ph.D.
Dean of the School

The School of Science and Engineering includes eight departments:

Aerospace Studies
Biology
Chemistry
Earth and Environmental Sciences
Engineering
Mathematics & Computer Science
Physics

and five scientific centers:

The Computer Aided Engineering & Manufacturing Center,
The Environmental Quality Center,
The Materials Processing & Diagnostics Center, and
The Center for Theoretical Studies.
Health Sciences Programs

The Departments offer a wide variety of programs based on the philosophy of immersing the student in a coherent educational environment designed to nurture scientific curiosity, professional growth and self-confidence. This environment, which is predicated on the notion that the relationship between the faculty member and the student is like that of the craftsman and the apprentice, is intended to enhance the ability of the student to integrate knowledge, recognize its universality, use it effectively in solving problems, and relate it responsibly to actual professional and community issues. This combined effort moves the student into the University's community of scholars as it provides the scientific knowledge and the analytical skills necessary for ready entry into industry, health-science professions, graduate study, or research. The science-intensive pre-medical core curriculum helps the students to gain mastery as scientists and problem solvers who are able to conceptualize and conduct independent research.

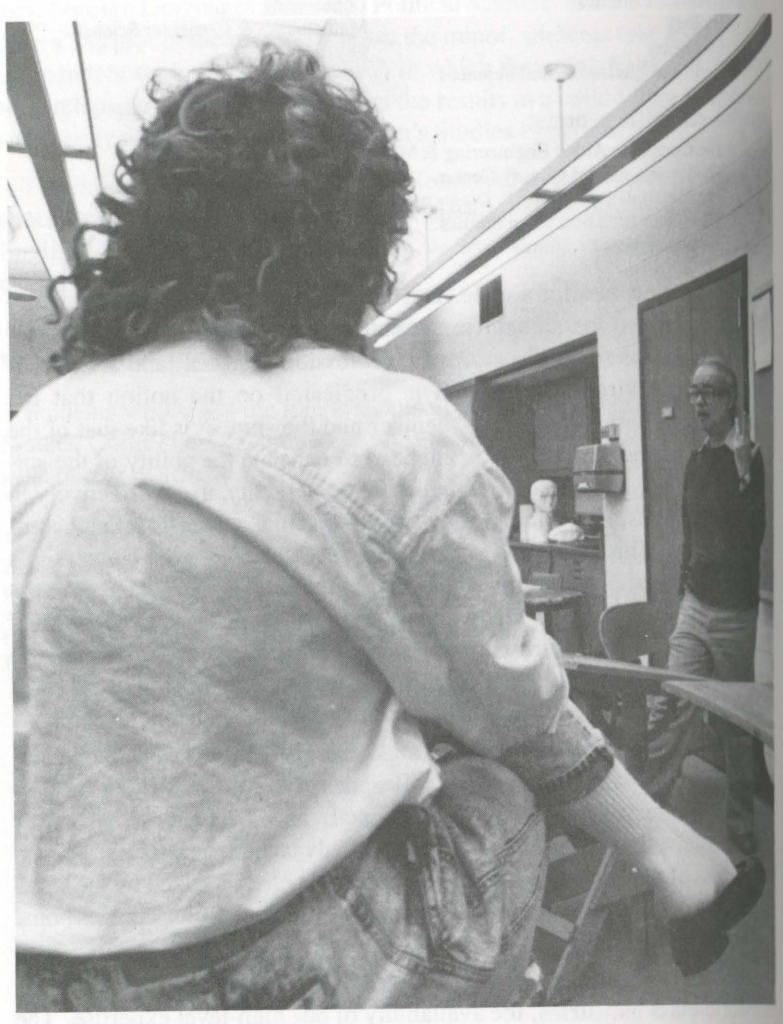
The School promotes an enhanced and synergistic interaction among students and faculty, as well as among colleagues. They are so structured as to provide intense investigative, experimental, and computer experiences through innovative programs and the use of advanced laboratories. The effectiveness of the School's educational process is characterized by the striking success of our graduates in industry as well as in prestigious professional and graduate schools.

The quality of externally funded projects has underscored, to local firms and world-class industries, the availability of our high-level expertise. The

diverse scientific and technological needs of the community, industry, and government are served through the School's scientific centers and by highly trained scientists and engineers. This activity, channeled through our Technology Transfer Program, has added a new, important dimension to our students' learning experience.

The School has transfer articulation agreements with a number of community colleges, universities, and medical schools. Internships with industry and hospitals make up yet another experiential component of the professional education.

Many of the programs offered are made available in the evening to the working professional.



AEROSPACE STUDIES (Air Force ROTC)

Lieutenant Colonel Matson, Professor, Chairperson; Assistant Professors Captain King, Captain Manley, Captain Mathias.

The Air Force ROTC program at Wilkes University 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 Officer 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 SCHOLARSHIP. 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; two-year 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. POC cadets earn a $100-per-month, tax-free subsistence allowance during the academic year and incur a military obligation. STUDENTS MAY ALSO COMPETE FOR FULL-TUITION AFROTC SCHOLARSHIPS. WILKES UNIVERSITY OFFERS FREE ROOM AND BOARD TO ALL FOUR-, THREE AND ONE-HALF-, AND THREE-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. 4860 (in state) or 1-800-537-4444, ext. 4860 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:

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 University and the U.S. Air Force. All new GMC cadets are required to pay an initial deposit of $50.00. All new POC cadets are required to pay an initial deposit of $130.00. 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. 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 two 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 weekly salary.

Leadership Laboratory (mandatory)

AFROTC cadets must participate in Leadership Laboratory one and one-half to two hours a 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	1
AS 000 Leadership Laboratory	0	AS 000 Leadership Laboratory	0
	1		1

Third Semester		Fourth Semester	
AS 201 The Development of Air Power I	1	AS 202 The Development of Air Power II	1
AS 000 Leadership Laboratory	0	AS 000 Leadership Laboratory	0
	1		1

AS 000 Leadership Laboratory is mandatory for all cadets who enroll in Air Force ROTC.

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. 4860, within state or 1-800-537-4444, ext. 4860, from adjacent states.

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.

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. 4860, within state or 1-800-537-4444, ext. 4860, 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 **No credit**

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 Thursday for one and one-half to 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). All dual-enrolled students must elect both sections.

AS 101. U.S. MILITARY FORCES IN THE CONTEMPORARY WORLD I **Fall — One credit**

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

AS 102. U.S. MILITARY FORCES IN THE CONTEMPORARY WORLD II **Spring — One credit**

U.S. general purpose military forces; insurgency and counter-insurgency; aerospace support forces and organizations. Development of individual communication skills.

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. Development of individual communication skills.

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. Development of individual communication skills.

Prerequisite: AS 201 or permission of instructor.

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 civil-military interaction; basic framework of defense policy and formulation of defense strategy; the impact of East Asia, Latin America, Africa, the Middle East, and the Soviet Union on U.S. national security policy. Development of individual communication skills.

Prerequisite: POC membership or permission of instructor. **Note: AFROTC cadets may substitute AS 311 for PS 398 with 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.

Prerequisite: AS 311 or permission of instructor.

BIOCHEMISTRY

Professor Faut, Chairperson; Professor Emeritus Bohning, Salley; Professors Rozelle, Stine, Swain; Associate Professor Phillips; Assistant Professor Wignot; Visiting Assistant Professor Obaza-Nutaitis; Laboratory Manager Bianco; Adjunct Professor Gregorek.

Total minimum number of credits required for a major in Biochemistry leading to the B.S. degree — 136.

Total minimum number of credits required for a major in Biochemistry leading to the B.A. degree — 137.

The Biochemistry curriculum is designed to provide comprehensive background education and training for those students interested in this specialty area. The B.S. degree curriculum was developed for those students who wish to prepare for Biochemistry as a professional option. Holders of the degree can seek employment directly in the field or they can pursue advanced degrees in graduate school. Positions are available in a number of biological and chemical companies, government laboratories, and college and university laboratories.

The B.A. degree was developed for those students who are interested in Biochemistry as a means of preparation for entrance into health science professional schools. Examples of such schools are allopathic, osteopathic, and podiatric medicine, dental medicine, pharmacy, optometry, etc. A specific feature of the B.A. degree program is that students may pursue the first three years of the biochemistry degree curriculum in the three year option under the Philadelphia College of Osteopathic Medicine — Wilkes University combined seven year medical and baccalaureate degree program.

Recommended Course Sequence for a Bachelor of Arts Degree and Bachelor of Science Degree in Biochemistry

First Semester

	B.A.	B.S.
Chm 115 Elements and Compounds	4	4
Bio 121 Principles of Modern Biology I	4	4
Mth 111 Calculus I	4	4
Eng 101 Composition I	3	3
CST 101 Core Studies I	1	1
PE 100 Activity	0	0
	16	16

Second Semester

	B.A.	B.S.
Chm 116 The Chemical Reaction	4	4
Bio 122 Principles of Modern Biology II	4	4
Mth 112 Calculus II	4	4
Eng 102 Composition II	3	3
CS Elective	3	3
PE 100 Activity	0	0
	18	18

Third Semester

	B.A.	B.S.
Chm 231 Organic Chemistry I	4	4
Phy 201 General Physics	4	4
Chm 223 Systematic Inorganic Chemistry	3	3
Mth 211 Intro. Linear Algebra and Differential Equations	4	4
Core Requirement	3	—
	18	15

Fourth Semester

	B.A.	B.S.
Chm 232 Organic Chemistry II	4	4
Phy 202 General Physics II	4	4
Chm 278 The History and Literature of Chemistry	2	2
Core Requirements	6	3
Mth 212 Multivariable Calculus	—	4
	16	17

Fifth Semester

	B.A.	B.S.
Chm 363 Biochemistry I	4	4
Chm 251 Physical Chemistry I	4	4
Chm 241 Quantitative Inorganic Analysis	4	4
Bio 221 Cellular and Molecular Biology	4	4
	16	16

Sixth Semester

	B.A.	B.S.
Chm 362 Biochemistry II	3	3
Chm 252 Physical Chemistry II	4	4
Chm 272 Chemical Structure Determination	—	3
Core Requirements	6	4
Bio 303 Bacteriology	4	4
	17	18

Seventh Semester

	B.A.	B.S.
Bio/Chm 397 Seminar	0	0
Bio 308 Genetics	4	4
Chm 391 Senior Research	1	1
Core Requirements	9	9
Electives	4	—
Chm 323 Advanced Inorganic Chemistry	—	4
	18	18

Eighth Semester

	B.A.	B.S.
Bio/Chm 397 Seminar	1	1
Bio 341 Immunology and Immunochemistry	4	4
Chm 392 Senior Research	2	2
Core Requirements	3	11
Electives	8	—
	18	18

Special Requirements

Chemistry 391-392 are laboratory research courses. A student may obtain permission of the department to carry out a Senior Project which is not laboratory research. This permission would be granted only in exceptional cases.

Teacher certification students must satisfy the requirements described on pages 135-139, as they pertain to chemistry certification. The certification student must take an introductory biology course, must work in the Chemistry Department as a Laboratory Assistant for a minimum of one semester, and will be required to do certain special assignments related to teacher training in Chm 278 and Chm 397.

All Chemistry majors must complete three credit-hours of Computer Science courses.

The Chemistry Department strongly recommends that students elect a foreign language to satisfy one of the core humanities requirements. The language of choice should be German, Russian, or French in that priority.

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

All upper division Chemistry majors are expected to attend Seminar. Seniors must take Chm 397 and participate in the Seminar program.

BIOLOGY

Professor Turoczi, Chairperson; Professors Emeriti Ogren, Reif; Associate Professors Hayes, Klemow; Assistant Professors Long, Pidcock, Steele; Adjunct Faculty Zehner; Laboratory Preparations Specialist, Zayleskie.

Total minimum number of credits required for a major in Biology leading to the B.A. degree — 124.

Total minimum number of credits required for a major in Biology leading to the B.S. degree — 124.

Total minimum number of credits required for a minor — 22.

The biology program is a generalized 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.

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 312, 315, 321, 322, 323, 341

Students in majors other than Biology may wish to elect a minor in Biology. The minor in Biology shall consist of a minimum of 22 credits. Required courses are Bio 121-122, 221-222 plus two 300-level, biology electives. These upper-level electives (exclusive of Independent Research, Bio 395-396) will be selected after consultation with the department chairperson.

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 their project 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 Major in Biology

First Semester	B.A.	B.S.
Bio 121 Principles of Modern Biology I	4	4
Chm 115 Elements & Compounds	4	4
Eng 101 Composition I	3	3
Mth 105 Calculus for Life, Managerial, and Social Sciences I or Mth 111 Calculus I	4	4
CST 101 Core Studies I	1	1
	16	16

Second Semester	B.A.	B.S.
Bio 122 Principles of Modern Biology II	4	4
Chm 116 The Chemical Reaction	4	4
Eng 102 Composition II	3	3
Mth 106 Calculus for Life, Managerial, and Social Sciences II or Mth 112 Calculus II	4	4
	15	15

Third Semester	B.A.	B.S.
Bio 221 Cellular and Molecular Biology	4	4
Chm 231 Organic Chemistry I	4	4
Core Requirements	6	6
PE 100 Activity	0	0
	14	14

Fourth Semester	B.A.	B.S.
Bio 222 Comparative Anatomy	4	4
Chm 232 Organic Chemistry II	4	4
Core Requirements	6	6
PE 100 Activity	0	0
	14	14

Fifth Semester	B.A.	B.S.
Bio 397 Seminar*	1	1
Bio Elective/Research	3	3
Phy 105 Introductory Physics I	4	4
Core Requirements	6	6
Free Elective**	3	—
Mth 150 Elementary Statistics	—	3
	16-17	16-17

Sixth Semester	B.A.	B.S.
Bio 397 Seminar*	1	1
Bio Elective/Research	3	3
Phy 106 Introductory Physics II	4	4
Core Requirements	6	6
Computer Science Elective	3	3
	16-17	16-17

*Only one semester of Bio 397 is required but it must be taken in either the fifth or sixth semester.

**Any course other than a biology course.

Seventh Semester

	B.A.	B.S.
Bio 391 Senior Research Projects	1	1
Bio Electives	3	6
Core Requirements	6	6
Free Electives**	6	3
	16	16

Eighth Semester

	B.A.	B.S.
Bio 392 Senior Research Projects	2	2
Bio Electives	3	6
Core Requirement	3	3
Free Electives**	9	6
	17	17

**Any course other than a biology course.

BIO 105. HUMAN BIOLOGY **Three credits**

This course provides a general study of the anatomy and physiology of the human body as well as the interrelationships between humans and the environment. This course is only open to non-science majors. Lecture, two hours per week; laboratory, two hours per week. Laboratory fee: $40.

BIO 106. CONTEMPORARY ISSUES IN BIOLOGY **Three credits**

Contemporary Issues in Biology covers selected biological, environmental, and health problems currently faced by mankind, and emphasizes their relevance to basic concepts in modern biology (including such topics as the chemistry of life, the structure and function of cells, genetic code, evolution and natural selection, biological diversity, population biology and ecology). Open only to non-science majors. Lecture, three hours per week.

BIO 107. PLANTS AND HUMAN AFFAIRS **Three credits**

An examination of plants and their past and present interrelationships with humans. Topics will include: an overview of plant form, function and diversity; ways that plants are used by various societies; detrimental plants; plant propagation; and the importance of plants in the ecosystem. Only open to non-science majors. Two hours of lecture and two hours of laboratory per week. Laboratory fee: $40.

BIO 108. PRINCIPLES OF GENE MANIPULATION **Three credits**

Principles of Gene Manipulation provides a foundation in molecular genetics, with emphasis on the organization, expression and regulation of genetic information, and on application of recombinant genetic technologies to address problems in medicine, agriculture and industry. Available for Area II credit only to non-science majors. Two hours of lecture and three hours of laboratory per week. Fee: $40.

BIO 113. MICROBIOLOGY **Four credits**

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: $40.

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: $40 each course.

BIO 121. PRINCIPLES OF MODERN BIOLOGY I **Four credits**

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: $40.

Corequisite: Chm 115.

BIO 122. PRINCIPLES OF MODERN BIOLOGY II **Four credits**

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: $40.

Prerequisite: Bio 121.

BIO 221. CELLULAR AND MOLECULAR BIOLOGY **Four credits**

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: $40.

Prerequisite: Bio 121-122.

BIO 222. COMPARATIVE ANATOMY **Four credits**

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: $40.

Prerequisites: Bio 121-122, 221.

BIO 303. BACTERIOLOGY **Four 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, culturing, and biochemical testing for the identification of bacteria. Lecture, three hours a week; laboratory, three hours a week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 304. LIFE OF THE VERTEBRATES **Three credits**

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: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 305. INVERTEBRATE BIOLOGY **Four credits**

This course is a study of the major invertebrate phyla with respect to their taxonomy, evolution, morphology, physiology, and ecology. Lecture, three hours a week; laboratory, three hours a week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 308. GENETICS **Four credits**

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, three hours; laboratory, three hours a week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 309. EVOLUTION **Three credits**

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: $20.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 310. ANIMAL BEHAVIOR **Four 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, three hours; laboratory, three hours a week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 312. COMPARATIVE PHYSIOLOGY **Four 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, three hours; laboratory, three hours a week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, 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: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 315. MOLECULAR BIOLOGY **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.

Prerequisites: Bio 121-122, 221-222, Chm 231-232, or permission of instructor.

BIO 317. ECOLOGY **Four 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, three hours; laboratory, three hours a week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 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 includes vertebrate embryology, microtechnique, and some experimentation. Lecture, two hours; laboratory, three hours a week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 319. PLANT DIVERSITY **Four credits**

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, three hours per week; laboratory, three hours per week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 320. PLANT FORM AND FUNCTION **Four 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, three hours per week; laboratory, three hours per week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 321. MAMMALIAN PHYSIOLOGY **Four credits**

This course examines the function of mammalian systems with regard to homeostasis, growth, and reproduction. Emphasis is on human physiology; however, other mammalian systems are discussed to demonstrate physiological adaptability to various environmental situations. Lecture, three hours; laboratory, three hours per week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 322. FUNCTIONAL HISTOLOGY **Four credits**

This course emphasizes the microscopic examination of mammalian tissues from morphological and physiological perspectives. Reference is made to organ embryogenesis to support the understanding of organ form and function. Tissue preparation for histological examination is demonstrated. Lecture, three hours; laboratory, three hours per week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 323. ELECTRON MICROSCOPY FOR LIFE SCIENCES **Three credits**

A comprehensive course in the basic principles and practice of scanning electron microscopy plus introductions to older and newer types of electron microscopy. Lectures and laboratories emphasize scanning electron microscopy techniques for students preparing their own biological specimens and recording their own electron micrographs. Lecture, two hours a week; laboratory, three hours a week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, or permission of department chairperson.

BIO 340. LIMNOLOGY **Three credits**

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: $45. (Same as EES 340)

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

BIO 341. IMMUNOLOGY AND IMMUNOCHEMISTRY **Four credits**

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. Three lectures and one three-hour laboratory per week. Laboratory fee: $40.

Prerequisites: Bio 121-122, 221-222, or permission of instructor.

BIO 385. FIELD BOTANY **Three credits**

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.

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

BIO 391-392. SENIOR RESEARCH PROJECTS **One credit, two credits**

The student will pursue independent research as a member of a team of senior biology majors. Each team will be responsible for the identification of an original research problem, a thorough literature review of the problem, a detailed prospectus prepared in the format of a grant proposal, complete execution of the research project, a formal oral presentation, and a final manuscript prepared in standard journal format. Senior research is required of all biology majors seeking a four-year degree in biology.

Prerequisite: Open only to senior biology majors.

BIO 394. BIOLOGICAL FIELD STUDY **One to three credits**

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.

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

BIO 395-396. INDEPENDENT RESEARCH **One to three credits**

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; it must also be orally presented at an appropriate off-campus science meeting.

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

BIO 397. SEMINAR — **One credit**

Presentations and discussions of selected topics.

Prerequisite: Junior-level standing.

BIO 399. COOPERATIVE EDUCATION — **One to six credits**

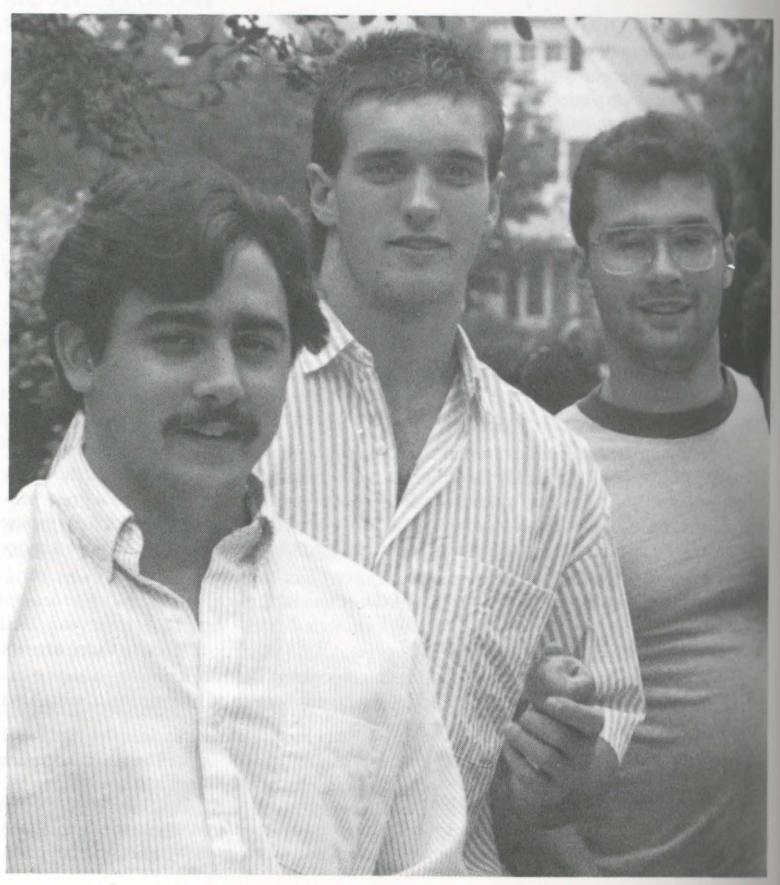
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

BIO 198/298/398. TOPICS — **Variable credit**

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

Prerequisites: Bio 121-122, 221-222, or permission of instructor.



CHEMISTRY

Professor Faut, Chairperson; Professor Emeritus Bohning, Salley; Professors Rozelle, Stine, Swain; Associate Professor Phillips; Assistant Professor Wignot; Visiting Assistant Professor Obaza-Nutaitis; Laboratory Manager Bianco; Adjunct Professor Gregorek.

Total minimum number of credits required for a major in Chemistry leading to the B.S. degree — 129.

Total minimum number of credits required for a major in Chemistry leading to the B.A. degree — 124.

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 with a double major in chemistry and computer science. In all cases students will choose electives for the various career options after consultation with departmental advisors.

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.

Recommended Course Sequences for a Major in Chemistry

First Semester

	B.A.	B.S.
Chm 115 Elements and Compounds	4	4
Eng 101 Composition I	3	3
Mth 111 Calculus I	4	4
Core Requirement	3	3
CST 101 Core Studies I	1	1
PE 100 Activity	0	0
	15	15

Second Semester

	B.A.	B.S.
Chm 116 The Chemical Reaction	4	4
Eng 102 Composition II	3	3
Mth 112 Calculus II	4	4
CS Elective	3	3
Free Elective	3	3
PE 100 Activity	0	0
	17	17

Third Semester

	B.A.	B.S.
Chm 231 Organic Chemistry I	4	4
Chm 223 Systematic Inorganic Chemistry	3	3
Mth 211 Intro. Linear Algebra and Differential Equations	4	4
Phy 201 General Physics	4	4
	15	15

Fourth Semester

	B.A.	B.S.
Chm 232 Organic Chemistry II	4	4
Chm 278 The History and Literature of Chemistry	2	2
Mth 212 Multivariable Calculus	—	4
Core Requirement	3	—
Phy 202 General Physics II	4	4
	13	14

Fifth Semester

	B.A.	B.S.
Chm 251 Physical Chemistry I	4	4
Chm 241 Quantitative Inorganic Analysis	4	4
Core Requirement	3	3
Free Electives	6	6
	17	17

Sixth Semester

	B.A.	B.S.
Chm 252 Physical Chemistry II	4	4
Chm 272 Chemical Structure Determination	—	3
Core Requirements	9	9
Free Elective	3	—
	16	16

Seventh Semester

	B.A.	B.S.
Chm 323 Advanced Inorganic Chemistry	—	4
Chm 391 Senior Research	1	1
Major Elective	3-4	—
Free Electives	6	6
Core Requirements	6	6
Chm 397 Seminar	0	0
	16-17	17

Eighth Semester

	B.A.	B.S.
Chm 392 Senior Research	2	2
Chm 397 Seminar	1	1
Major Elective	—	3
Free Electives	9	6
Core Requirements	3	6
	15	18

Special Requirements

B.A. degree students must elect a minimum of two 300-level courses, one of which must be in the Chemistry Department.

B.S. degree students must elect a minimum of one 300-level course in addition to required 300-level courses, Chm 323, 391-392, and 397. Cooperative Education may not be counted as an advanced 300-level chemistry elective.

Chemistry 391-392 are laboratory research courses. A student may obtain permission of the department to carry out a Senior Project which is not laboratory research. This permission would be granted only in exceptional cases.

Teacher certification students must satisfy the requirements described on pages 135-139, as they pertain to chemistry certification. The certification student must take an introductory biology course, must work in the Chemistry Department as a Laboratory Assistant for a minimum of one semester, and will be required to do certain special assignments related to teacher training in Chm 278 and Chm 397.

All Chemistry majors must complete three credit-hours of Computer Science courses.

The Chemistry Department strongly recommends that students elect a foreign language to satisfy one of the core humanities requirements. The language of choice should be German, Russian, or French in that priority.

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

All upper division Chemistry and Biochemistry majors are expected to attend Seminar. Seniors must take Chm 397 and participate in the Seminar program.

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 — **Three credits each**

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 — **Four credits**

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: $40.

CHM 115. ELEMENTS AND COMPOUNDS — **Four credits**

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: $40.

CHM 116. THE CHEMICAL REACTION **Four credits**
A detailed study of chemical equilibria in aqueous solution. Class, three hours a week; laboratory, three hours a week; problem session, one hour a week. Fee: $40.
Prerequisite: Chm 115.

CHM 118. CHEMISTRY FOR ENGINEERS **Three credits**
An introduction to chemical equilibria, electrochemistry, thermodynamics, chemical kinetics, and the chemistry of selected metals and nonmetals. Class, two hours a week; laboratory, three hours a week; problem session, one hour a week. Fee: $40.
Prerequisite: Chm 115, engineering majors only.

CHM 130. ORGANIC AND BIOLOGICAL CHEMISTRY **Four credits**
An introduction to the structure and reactions of carbon compounds as a background for the study of interactions of biologically active compounds such as carbohydrates, proteins, and nucleic acids. Not open to chemistry majors. Lecture, three hours a week; laboratory, three hours a week; problem session, one hour a week. Fee: $40.
Prerequisite: Chm 111 or 115.

CHM 223. SYSTEMATIC INORGANIC CHEMISTRY **Three credits**
A systematic description of the chemistry of the main group elements based on fundamental chemical principles. Class, three hours a week.
Prerequisite: Chm 116.

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: $40.
Prerequisite: Chm 116 or Chm 118.

CHM 232. ORGANIC CHEMISTRY II **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: $40.
Prerequisite: Chm 231.

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: $50.
Prerequisite: Chm 116.

CHM 251. PHYSICAL CHEMISTRY I **Four credits**
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: $40.
Prerequisites: Chm 116, Mth 106 or Mth 211, Phy 106 or Phy 202.

CHM 252. PHYSICAL CHEMISTRY II **Four credits**
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: $40.
Prerequisite: Chm 251.

CHM 272. CHEMICAL STRUCTURE DETERMINATION **Three 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. Class, one hour a week; laboratory, six hours a week. Fee: $50.
Prerequisites: Chm 223, 232, 251.

CHM 278. CHEMICAL INFORMATION RETRIEVAL TECHNIQUES **Two credits**
The nature and use of the important sources of chemical information are developed through retrospective searching methods and current awareness concepts. Emphasis is placed on the study of computer-based systems, access to remote commercial databases, the design of personalized database computer files. Information search strategies, and supplemental manual search procedures. Literature preparation for Independent Research (Chm 395-396) is included. Class, one hour a week; computer and library laboratory, three hours a week.
Prerequisite: Permission of instructor.

CHM 323. ADVANCED INORGANIC CHEMISTRY **Four credits**
Introduction to ligand field theory; chemistry of the first transition series, organometallic, and π acceptor compounds; mechanisms of inorganic reactions. Class, three hours a week; laboratory, three hours a week. Fee: $50.
Prerequisites: Chm 223 and 252.

CHM 346. POLYMER CHEMISTRY **Three credits**
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 361. BIOCHEMISTRY I **Three credits**
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 credits**
A study of metabolism with emphasis on metabolic regulation.
Prerequisite: Chm 232.

CHM 363. BIOCHEMISTRY **Four credits**
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. Class, three hours a week; laboratory, three hours a week. Fee: $50.
Prerequisite: Chm 232.

CHM 391. SENIOR RESEARCH I **One credit**
Plan and carry out a selected chemistry research project under the direction of a faculty member. It is expected that this project will be a laboratory research project.
Prerequisite: Senior standing in a Chemistry curriculum.

CHM 392. SENIOR RESEARCH II **Two credits**
Carry out a selected chemistry research project under the direction of a faculty member. It is expected the project will be a laboratory research project. The project must culminate in a written report and the results must be presented at a Department Seminar.
Prerequisite: Chm 391.

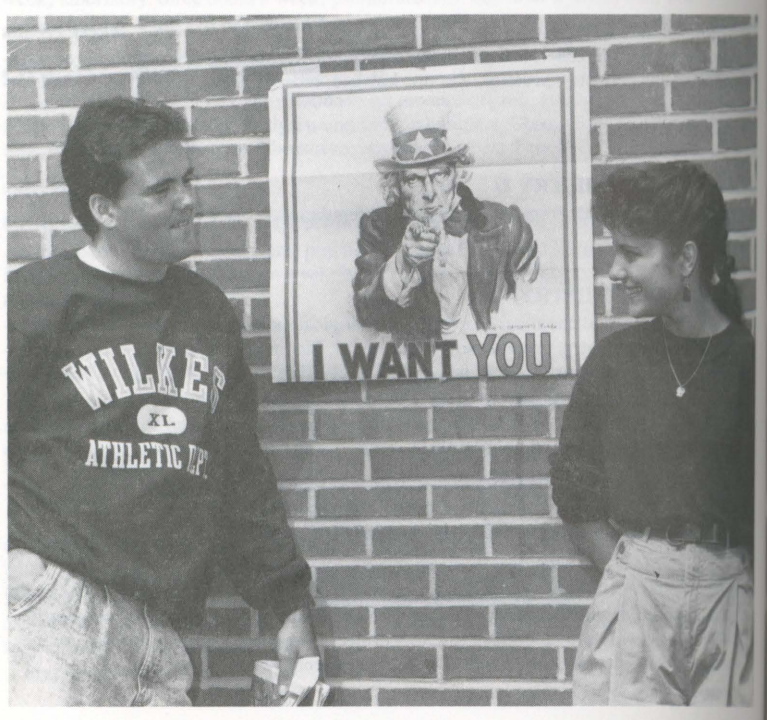
CHM 395-396. INDEPENDENT RESEARCH **One to three credits each**
Independent study and research for advanced students in the field of the major under the direction of a staff member. A research paper at a level significantly beyond a term paper is required. Cannot be taken for credit before the seventh semester but may be a continuation of work begun before the seventh semester. Fee: one credit $30, two credits $40, three credits $50.

CHM 397. SEMINAR **Zero or one credit**
Presentations and discussions of selected topics in chemistry conducted by senior chemistry majors, staff, and visiting lecturers. Freshman and sophomore chemistry majors are encouraged to attend. Junior and Senior Chemistry majors are required to participate.
Prerequisite: Approval of department chairperson is required.

CHM 398. TOPICS **One to three credits**
A study of topics of special interest, such as advanced physical chemistry, advanced analytical chemistry, advanced organic chemistry, surface and colloid chemistry, nuclear chemistry, chemical kinetics, or spectroscopy.

CHM 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)
Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

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 chairperson.



COMPUTER INFORMATION SYSTEMS

Professor Wong, Chairperson.

Total minimum number of credits required for a major in Computer Information Systems leading to the B.S. degree — 123.

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

Minor in Management Information Systems

Required courses:	credit hours
CS 124, 224, 324, 325	12
BA 351	3
Any two among:	
BA 256, 352, 354	6
Minimum Total Required	21

Recommended Course Sequence for a Major in Computer Information Systems

NOTE: All core requirements should be chosen to satisfy the General Core Requirements listed on pages 59-62. While all of the courses listed are required, sequencing may vary, provided that the prerequisites are met.

First Semester	
Eng 101 Composition I	3
CS 115 Survey of Computers & Data Processing	3
Mth 105 Calculus for Life, Managerial, and Social Sciences I	4
Core Requirements	6
CST 101 Core Studies I	1
PE 100 Activity	0
	17

Second Semester	
Eng 102 Composition II	3
CS 125 Computer Science I	3
Mth 106 Calculus for Life, Managerial, and Social Sciences II	4
Core Requirements	6
PE 100 Activity	0
	16

Third Semester	
CS 124 Introduction to Business Programming: COBOL	3
BA 351 Management of Organizations	3
Acc 121 Intro. Financial Accounting	3
Mth 150 Elementary Statistics	3
Core Requirement	3
	15

Fourth Semester	
CS 224 File Management: COBOL	3
BA 352 Operations and Systems Management	3
Acc 122 Intro. Managerial Accounting	3
Core Requirements	6
	15

Fifth Semester	
CS 324 Systems Analysis	3
BA 225 Managerial Finance	3
Core Requirements	6
Free Elective	3
	15

Sixth Semester	
CS 325 Database Management	3
BA 222 Marketing	3
Core Requirements	6
Free Elective	3
	15

Seventh Semester	
CS/Mth Elective*	3
COM 101 Public Speaking	3
Eng 202 Technical and Professional Writing	3
Free Electives	6
	15

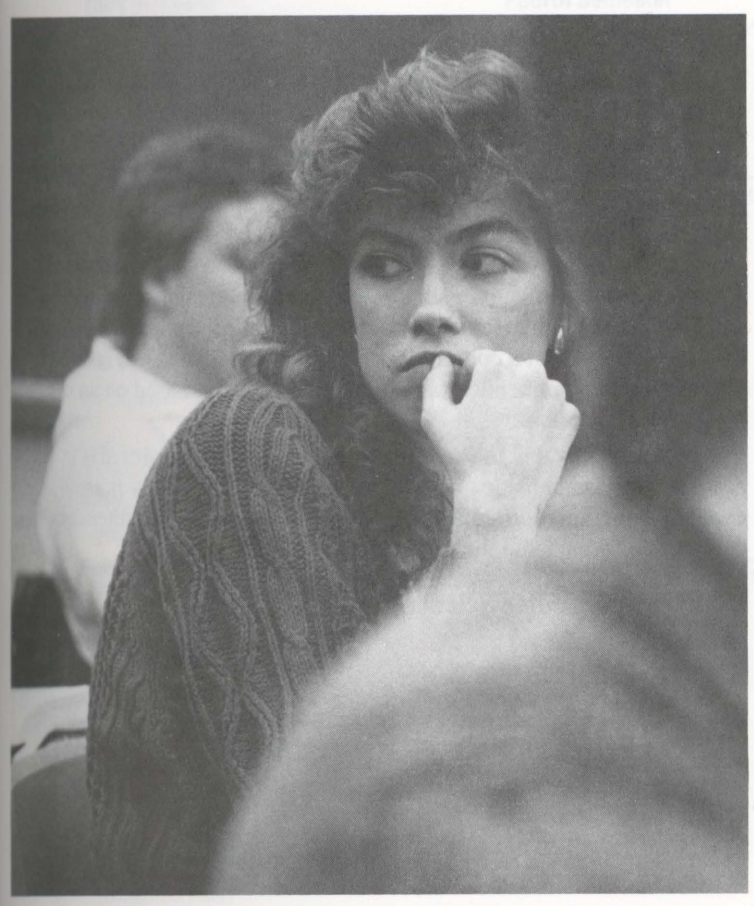
Eighth Semester	
CS/Mth Elective*	3
BA 354 Organizational Design & Behavior or BA 256 Business and Society	3
Free Electives	9
	15

*CS/Mth electives must include two of the following: CS 260, CS 262, CS 321, CS 335, or Mth 354.

Summary of Minimum Credit Distribution for the CIS Major:

	credit hours
CS 115, 124, 125, 224, 324, and 325	18
Mth/CS Electives*	6
Acc 121-122, BA 222, 225, 351, and 352	18
BA 256 or BA 354	3
Mth 105-106** and 150	11
Eng 101-102	6
Eng 202	3
COM 101	3
Core Requirements	34
Free Electives	21
Total	123

*CS/Mth electives must include two of the following: CS 260, CS 262, CS 321, CS 335, or Mth 354.
**Mth 111-112 may replace Mth 105-106.



COMPUTER SCIENCE

Professor Wong, Chairperson; Professors Emeritus Richards, Salsburg; Professors Koch, Merrill, Sours, Tillman; Associate Professors Berard, Decosmo, Schwartz; Assistant Professors Belanger, Kugendran, Rosenbaum, Snyder, Wang.

Total minimum number of credits required for a major in Computer Science leading to the B.A. degree — 124.

Total minimum number of credits required for a major in Computer Science leading to the B.S. degree — 126.

Total minimum number of credits required for a minor — 21.

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 also offers major programs in mathematics and Computer Information Systems (see pages 279 and 221), and minor programs in management information systems (see page 221) and statistics (see page 280).

Major in Computer Science

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. degree is intended for those interested in management and social sciences, whereas the B.S. degree requires greater concentration in the engineering, 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. Required courses for a computer science major are indicated in the curriculum outlines recommended on page 225, which are based on an extensive prerequisite structure.

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. Interested students may obtain further details and application forms from the department chairperson.

Minor in Computer Science

Required Courses:	credit hours
CS 123 or 124, 125, 126, 227	12
Electives: chosen in accordance with either (a) or (b) below:	9
a. CS minor with emphasis on data processing applications — CS 224, 324, 325	
b. general CS minor — CS 230 and any two CS courses numbered above 250	
Minimum Total Required	21

Recommended Course Sequences for a Major in Computer Science

NOTE: All core requirements should be chosen to satisfy the General Core Requirements listed on pages 59-62, except that science electives must be in accordance with the Department's requirements specified on page 226. While all of the courses listed below are required, the sequencing may vary, provided that the prerequisites are met.

First Semester

	B.A.	B.S.
Mth 111 Calculus I	4	4
Eng 101 Composition I	3	3
CS 125 Computer Science I	3	3
Core Requirements	6	6
CST 101 Core Studies I	1	1
PE 100 Activity	0	0
	17	17

Second Semester

	B.A.	B.S.
Mth 112 Calculus II	4	4
Eng 102 Composition II	3	3
CS 126 Computer Science II	3	3
Core Requirements	6	6
PE 100 Activity	0	0
	16	16

Third Semester

	B.A.	B.S.
Mth 202 Set Theory and Logic	4	4
CS 230 Machine Language	3	3
CS 123 Intro. to Scientific Programming: FORTRAN or CS 124 Intro. to Business Programming: COBOL	3	3
Core Requirements	6	6
	16	16

Fourth Semester

	B.A.	B.S.
Mth 214 Linear Algebra	3	3
CS 227 Computer Data Structures	3	3
Science Elective[1]	3	3
Core Requirements	6	6
	15	15

Fifth Semester

	B.A.	B.S.
CS Electives[2]	3	6
Science Elective[1]	3	4
Core Requirement	3	3
Free Electives	6	3
	15	16

Sixth Semester

	B.A.	B.S.
CS 319 Principles of Programming Languages[3] or CS Elective[2]	3	3
Science Elective[1]	3	4
Free Electives	9	9
	15	16

Seventh Semester

	B.A.	B.S.
CS Elective[2]	3	3
Free Electives	12	12
	15	15

Eighth Semester

	B.A.	B.S.
CS 319 Principles of Programming Languages[3] or CS Elective[2]	3	3
Free Electives	12	12
	15	15

[1] See page 226 for the Department's requirements regarding science electives.
[2] See page 226 for the Department's requirements regarding CS electives.
[3] CS 319 is offered in alternate years.

Science Electives for Computer Science Majors:

B.A. candidates: Three courses in Biology, Chemistry, Earth and Environmental Sciences or Physics chosen from among those listed on page 62 under the "Scientific World" distribution area. Selections must include two different fields and at least one course with a laboratory component.

B.S. candidates: Any two courses in Biology, Chemistry, Earth and Environmental Sciences, or Physics, which are normally taken by majors in these fields.

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.*

Computer Science Electives for Computer Science Majors:

B.A. candidates: One course from the software group and two courses from the applications group.

B.S. candidates: One course from each group below.

Theory	Software	Hardware	Applications
CS 323	CS 326	CS 320	CS 260
CS 328	CS 327	CS 329	CS 262
CS 364	CS 325	CS 330	CS 321
	CS 335		CS 324
			CS 367

Summary of Minimum Credit Distribution for Computer Science Majors:

	B.A.	B.S.
Mth 111, 112, 202, and 214	15	15
CS 123 or 124, 125, 126, 227, 230, and 319	18	18
CS Electives	9	12
Science Electives	9-12	11-12
Eng 101-102	6	6
Core Requirements	28	28
Free Electives	39	36
Minimum Total Required	124-7	126-7

CS 115. SURVEY OF COMPUTERS AND DATA PROCESSING **Three credits**

Introduction to computers, both large and small, but with emphasis on, and hands-on experience with, personal computers (Macintosh, IBM-PC). Includes a survey of current commercial software (including word processing, a database, and a spread sheet). 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. Fee: $50.

Offered every fall, spring and summer.

CS 123. INTRODUCTION TO SCIENTIFIC PROGRAMMING: FORTRAN **Three credits**

Structured programming, algorithm design, and introduction to programming using FORTRAN 77. The computer is used to solve problems from a variety of fields. Fee: $50. (same as Egr 244)

Prerequisite: Secondary mathematics including geometry and algebra II.

Offered every fall, spring and summer.

CS 124. INTRODUCTION TO BUSINESS PROGRAMMING: COBOL **Three credits**

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: $50.

Offered every fall, spring, and summer.

CS 125. COMPUTER SCIENCE I **Three credits**

An introduction to the fundamental concepts of computer science, with emphasis on problem solving and algorithm design using the Pascal programming language. Fee: $50. (same as Egr 245)

Prerequisite: Secondary mathematics including geometry and algebra II.

Offered every spring and fall.

CS 126. COMPUTER SCIENCE II **Three credits**

A study of advanced programming techniques (including recursion and manipulation of structured data types and pointer variables) and abstract linear data structures (lists, stacks, and queues). Fee: $50. (same as Egr 246)

Prerequisite: CS 125 (Egr 245).

Offered every spring and fall.

CS 224. FILE MANAGEMENT: COBOL **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: $50.

Prerequisite: CS 124.

Offered every spring and summer.

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: $50. (same as EE 343)

Prerequisite: CS 126/Egr 246.

Offered every spring.

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: $50. (same as Egr 342)

Prerequisite: CS 126/Egr 246.

Offered every fall.

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)

Prerequisites: Mth 106 and CS 123 or CS 125.

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)

Prerequisites: CS 123 or CS 125; Mth 105-106 or Mth 111-112; and some elementary knowledge of matrices.

Offered every spring.

CS 319. PRINCIPLES OF PROGRAMMING LANGUAGES **Three credits**

A study of the principles that govern the design and implementation of programming languages. Topics include language structure, data types, and control structures. Programming projects will familiarize students with the features of several specific languages, such as Ada, LISP, and PROLOG.

Prerequisite: CS 227.

Offered in the spring semester of even years.

CS 320. 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 for 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 **Three credits**

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, SLAM, GPSS, and/or SIMSCRIPT.

Prerequisites: CS 123/Egr 244 or CS 125/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, Turing machines and computability.

Prerequisites: Mth 202 and CS 126/Egr 246.

Offered in the fall semester of even years.

CS 324. SYSTEMS ANALYSIS **Three credits**

A study of the design and implementation of large computer projects. Special emphasis is placed on applications to business systems. Students will use a CASE tool for automated systems analysis and design.

Prerequisite: CS 224.

Offered every fall.

CS 325. DATABASE MANAGEMENT **Three credits**

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 **Three credits**

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 **Three credits**

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.

Offered in the spring semester of odd years.

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.

Prerequisites: CS 227/EE 343 and Mth 202.

Offered in the spring semester of even years.

CS 329. 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 per week. Fee: $50. (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 **Three credits**

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)

Prerequisites: CS 123/Egr 244 or CS 125/Egr 245 and Mth 211 or consent 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 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.

CS 370. SPECIAL PROJECTS **Variable credit**

The definition, formulation, programming, solution, documentation, and testing of a sophisticated problem or project under close faculty supervision. The project will be drawn from industry, 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 399 toward the graduation requirement in the computer science major.

Prerequisite: Senior standing and approval of department chairperson.

CS 395-396. INDEPENDENT STUDY IN COMPUTER SCIENCE **Variable credit**

Individual study in a chosen area of computer science under the supervision of a faculty member. May be repeated for credit.

Prerequisite: Approval of department chairperson.

CS 399. COOPERATIVE EDUCATION **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

CS 198/298/398/498. TOPICS IN COMPUTER SCIENCE **Variable credit**

Study of one or more special topics in computer science. May be repeated for credit, if involving different topics.

Prerequisite: Varies with topics studied.

EARTH AND ENVIRONMENTAL SCIENCES

Professor Bruns, Chairperson; Professor Cox; Associate Professors M. Case, Klemow, Pindzola, Redmond; Assistant Professors Chebulo, S. Halsor; Adjunct Faculty Smith, Winsor; Lab Director Oram; Lab Assistant C. Halsor.

Total minimum number of credits required for a major in Earth and Environmental Science leading to the B.A. — 129.

Total minimum number of credits required for a major in Earth and Environmental Science leading to the B.S. — 131.

Total minimum number of credits required for a minor — 18.

Total minimum number of credits required for a minor in Geology — 18.

The Department of Earth and Environmental Sciences has two major 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 major leading to the B.S. degree emphasizes the technical and analytical 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 Sciences. A related degree in Environmental Engineering is offered by the Engineering Department in conjunction with the EES department.

The major leading to the B.A. degree 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, elementary education or political science. Students with this degree would be trained to work in Environmental Science policy-making and administration. Another option is to satisfy the requirements leading to a Pennsylvania Secondary Teaching Certificate with certification in Earth and Space Science.

Two minors are offered by the department. A minor can be obtained by students with a demonstrated expertise in Earth and Environmental Sciences or Geology as determined by the faculty of the department. The minimum requirement can be met by students who have completed 18 credits in EES (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. Courses counted toward the proposed geology minor could not be used for the existing EES minor; however, since there is no geology major, EES majors, like any other major, could pursue a geology minor.

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

First Semester	TECHNICAL WRITING	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
EES 121 Technological Survival	3	3	3	3
PE 100 Activity	0	0	0	0
Bio 121 Modern Biology I	4	4	4	–
Ec 101 Economics I	—	—	3	–
PS 102 Intro. to American Politics	—	3	—	–
Psy 101 General Psychology I	—	—	—	3
CST 101 Core Studies I	1	1	1	1
Core Requirement	3	—	—	3
	18	18	18	18
Second Semester				
Eng 102 Composition	3	3	3	3
EES 240 Principles of Environmental Sci.	4	4	4	4
PE 100 Activity	0	0	0	0
Bio 122 Modern Biology II	4	4	4	–
Ec 102 Economics II	—	—	3	–
PS 105 Comparative Government	—	3	—	–
Psy 221 Developmental Psychology	—	—	—	3
Core Requirements	6	3	3	6
	17	17	17	17
Third Semester				
EES 211 Physical Geology	4	4	4	4
Egr 181 CADD Lab	1	1	1	–
Phy 105 Introductory Physics	4	4	4	4
Acc 121 Introductory Financial Accounting	—	—	3	–
Eng 151 Western World Literature I	3	—	—	–
Ed 201 Effective Teaching	—	—	—	3
PS 218 Intro. to Public Administration	—	3	—	–
Core Requirement	3	3	3	3
	15	15	15	14

Fourth Semester	TECHNICAL WRITING	POLITICAL SCIENCE	BUSINESS ADMIN.	EARTH & SPACE SCIENCE ED.
EES 230 Ocean Science	4	4	4	4
EES 212 Historical Geology	—	—	—	3
Phy 106 Introductory Physics	4	4	4	4
Acc 122 Intro. to Managerial Accounting	—	—	3	—
Ed 202 Educational Psychology	—	—	—	3
Ed 203i Special Methods of Teaching in the Sciences	—	—	—	4
Eng 152 Western World Literature II	3	—	—	—
Statistics or Computer Science Elective	3	3	3	—
Core Requirements	3	6	3	—
	17	17	17	18
Fifth Semester				
Chm 115 Elements & Compounds	4	4	4	4
EES 251 Synoptic Meteorology	4	4	4	4
BA 351 Management of Organizations	—	—	3	—
Eng 201 Advanced Composition	3	—	—	—
Statistics or Computer Science Elective	—	—	—	3
PS Elective	—	3	—	—
Core Requirements	6	6	6	6
	17	17	17	17
Sixth Semester				
EES Electives	6	6	6	6
EES 194 Field Study	1	1	1	1
EES 252 Climatology	—	—	—	3
BA 354 Organizational Design & Behavior	—	—	3	—
Eng 202 Technical Writing	3	—	—	—
PS 354 Administrative Law & Policy	—	3	—	—
Core Requirements	6	6	6	6
	16	16	16	16

Seventh Semester	TECHNICAL WRITING	POLITICAL SCIENCE	BUSINESS ADMIN.	EARTH & SPACE SCIENCE ED.
EES 391 Senior Projects I	1	1	1	–
Ed 382 Intern Teaching	—	—	—	15
Eng 203 Creative Writing	3	—	—	–
COM 101 Fundamentals of Public Speaking	3	3	—	–
PS Elective	—	3	—	–
BA Elective	—	—	3	–
EES Elective	3	3	3	–
English Elective	3	—	—	–
Free Elective	3	3	3	–
Core Requirements	—	3	6	–
	16	16	16	15
Eighth Semester				
EES 392 Senior Projects II	2	2	2	2
EES 280 Principles of Astronomy	—	—	—	4
PS Elective	—	3	—	–
BA Elective	—	—	3	–
EES Elective	3	3	3	3
Eng 391 Projects in Writing	3	—	—	–
Free Elective	3	3	3	–
Statistics or Computer Science Elective	3	3	3	3
Core Requirement	—	—	—	3
	14	14	14	15
Total Minimum Credits for B.A.	**129**	**129**	**129**	**132**

NOTE — All B.A. degree candidates are required to complete an appropriate minor or teaching certification as above (others may be considered by the department). The Earth & Space Science Teaching Certification program has additional non-course requirements.

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

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Bio 121 Modern Biology I	4	Bio 122 Modern Biology II	4
Mth 111 Calculus I	4	Mth 112 Calculus II	4
EES 121 Technological Survival	3	EES 240 Environmental Science	4
Egr 181 CADD Lab	1	PE 100 Activity	0
CST 101 Core Studies I	1		15
PE 100 Activity	0		
	16		

Third Semester		Fourth Semester	
EES 211 Physical Geology	4	EES 230 Ocean Science	4
Statistics or Computer Science Elective	3	Statistics or Computer Science Elective	3
Chm 115 Elements & Compounds	4	Chm 116 Chemical Reaction	4
Core Requirements	6	Core Requirements	6
	17		17

Fifth Semester		Sixth Semester	
Phy 105/201 Introductory Physics	4	Phy 106/202 Introductory Physics	4
EES 251 Synoptic Meteorology	4	EES Electives	6
Phy 221 Instrumentation	3	EES 194/394 Field Study	1
Free Elective	3	Core Requirement	6
Core Requirement	3		17
	17		

Seventh Semester		Eighth Semester	
EES 391 Senior Projects I	1	EES 392 Senior Projects II	2
EES Elective	3	EES Electives	5
Core Requirements	6	Core Requirements	6
Free Electives	6	Free Elective	3
	16		16

NOTE – B.S. candidates are encouraged to complete a science minor. For example, a Physics minor includes 18 credits of Physics above the 200 level which can be met by taking the PHY 201, 202, 203 introductory sequence instead of PHY 105, 106 and by taking the required PHY 221 and PHY 225 (EES 251). Candidates are also encouraged to have relevant Co-op experience, 6 credits of which may count as EES electives.

Courses at the 200 level and above are intended for science and math majors only. Exceptions by permission of the instructor. Election of a 200-level course by a non-science major will preclude registration for the corresponding 100-level course.

EES 110. SURVEY OF ASTRONOMY **Three credits**
Topics covered include stars, constellations, galaxies, sun, planets, and satellites. Intended for non-science majors. Two hours lecture and two hours laboratory/recitation. Fee: $40.

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: $40.

EES 120. SURVEY OF METEOROLOGY **Three credits**
Topics covered include temperature, precipitation, wind, weather maps, weather phenomena, and climate. Intended for non-science majors. Two hours lecture and two hours laboratory/recitation. Fee: $40.

EES 121. TECHNOLOGICAL SURVIVAL **Three credits**
An introduction to the techniques of analysis and problem solving in engineering and the sciences. Also a presentation and discussion of scientific and technical world views. Emphasis on visualization with symbolic, verbal, and written communication. Introduction to selected mathematical topics including vectors and matrices. Modeling, examples of physical law, engineering design, and problem solving using computers. Selected current topics with technical merit or likely impact on the future, and a cooperative design project. Three hours lecture/recitation per week.
Prerequisite: Familiarity with Algebra and Geometry.

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: $40.

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: $40.

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: $45. **(For science majors only)**

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.

EES 230. OCEAN SCIENCE **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: $45. **(For science majors only)**

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: $45. **(For science majors only)**

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: $45. (same as Phy 225) **(For science majors only)**

EES 252. CLIMATOLOGY **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 261. REGIONAL GEOGRAPHY **Three credits**
Topics covered include maps and charts, and basic elements of physical, cultural, historical, and economic geography as applied to specific geographic regions. Three hours lecture and laboratory.

EES 280. PRINCIPLES OF ASTRONOMY **Four credits**
Topics include orbital mechanics, results of planetary probes, spectra and stellar evolution, and cosmology. Three hours lecture and three hours laboratory. Fee: $45. (same as Phy 228) **(For science majors only)**

EES 305. HAZARDOUS & SOLID WASTE MANAGEMENT **Three credits**
Assessment of the scope of the hazardous and solid waste problem and engineering and management 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.
Prerequisites: Chm 116 or 118 and EES 240.

EES 315. SOILS SCIENCE **Three credits**
A study of the structure, properties, and classification of soils. Fundamental concepts of soils science are applied to the environmental management of terrestrial ecosystems. Topics include a modern perspective on soil; genesis, classification, and physical properties of soils; organic and inorganic nutrient chemistry; soil moisture relationships; and erosion, sedimentation, and land-use management concepts in selected biomes. Measurements are made both in the field and the laboratory. Two hours lecture and three hours laboratory per week. Fee: $45. Offered every other year.
Prerequisites: Chm 115 and EES 211.

EES 317. ECOLOGY **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: $40.
Prerequisites: Bio 121-122, 223-224, or permission of instructor.

EES 320. HYDROLOGY **Three credits**
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 two hours laboratory. Fee: $45.
Prerequisite: EES 211.

EES 325. DYNAMIC METEOROLOGY **Three credits**
Topics include themodynamics; heat, moisture, and momentum transfer; and atmospheric forces and motion fields. Three hours lecture and one hour discussion.
Prerequisites: EES 251, Mth 105 or 111, or permission of instructor.

EES 330. ADVANCED WATER QUALITY MEASUREMENTS **Four credits**

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: $55.

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

EES 331. ADVANCED AIR QUALITY MEASUREMENTS **Four credits**

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: $55.

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

EES 340. LIMNOLOGY **Three credits**

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 two hours laboratory. Fee: $45. (same as Bio 340)

Prerequisite: Bio 121-122 and consent of instructor.

EES 370. GEOMORPHOLOGY **Three credits**

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 two hours laboratory. Fee: $45.

Prerequisites: EES 211 and 320.

EES 375. GEOCHEMISTRY **Three credits**

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 two hours laboratory. Fee: $45.

Prerequisites: EES 211 and Chm 116, or consent of instructor.

EES 381. MINERALOGY **Three credits**

Ionic structure of minerals; physical properties and external form as consequences of structure; determination of minerals by physical tests. Two hours lecture and two hours laboratory. Fee: $45.

Prerequisites: EES 211 and Chm 111 or 115.

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. Two hours lecture and two hours laboratory. Fee: $45.

Prerequisites: EES 211 and 381.

EES 385. FIELD BOTANY **Three credits**

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.

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

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 conclusion of their project. Course may be repeated (with a maximum of six credits applied toward graduation).

Prerequisites: Senior standing and approval of department advisor and chairperson.

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(s). 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.

Prerequisites: Upper-class standing and approval of academic advisor, research advisor, and department chairperson.

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

Presentations and discussions of selected topics and projects.

Prerequisite: Senior standing.

EES 399. COOPERATIVE EDUCATION **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

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.

ENGINEERING

Associate Professor Armand, Chairperson; Professor Emeritus Thomas; Professors Arora, Faut, Hostler, Kaska, Orehotsky; Associate Professors Ahmad, Bush, Choudhry, Ghorieshi, Maxwell, Pindzola, Razavi; Assistant Professors Bamford, Choe, Gilmer, Janecek, Kalim, Kucirka, Lee, Srinivasan; Visiting Assistant Professor Sichler; Adjunct Faculty Fredrick, Osadchy; CADD Manager Petyak; Technical Support Staff: Hutchinson, Lennox, Will.

Total minimum number of credits required for a major in Applied and Engineering Sciences leading to the B.A. degree — 127.

Total minimum number of credits required for a major in Electrical Engineering leading to the B.S. degree — 137.

Total minimum number of credits required for a major in Environmental Engineering leading to the B.S. degree — 135.

Total minimum number of credits required for a major in Materials Engineering leading to the B.S. degree — 136.

Total minimum number of credits required for a major in Mechanical Engineering leading to the B.S. degree — 134.

Total minimum number of credits required for a major in Engineering Management leading to the B.S. degree — 137.

The Department of Engineering offers four 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. An M.S. degree in Electrical Engineering, which is described in a separate graduate Bulletin, is also available.

The four-year programs in Electrical Engineering, Engineering Management, Environmental Engineering, Materials Engineering, and Mechanical 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 major must declare a preference area in electrical, environmental, manufacturing, materials, or mechanical. Graduates of this program, with high academic averages, can attain an M.B.A. degree in one year at Wilkes.

The major in applied and engineering sciences is designed to integrate the traditional liberal arts and sciences with technological courses: general collegiate education is stressed including a broad knowledge of basic technological concepts in a humanistic context. This general education is coupled with a specific academic competence in an area pertinent to the career goals of individual students. Individual concentrations within the major are structured from the 72 credits of unspecified core requirements (distribution requirements must be satisfied), science and technology electives, and free electives. A minimum of 15 credits must be completed in a concentration, which may be in a particular discipline or in one of the following interdisciplinary areas: Information Systems, Cognitive Studies, Allied Health, Physical Sciences, Planning & Technology Management, and Environment & Public Policy. Each individual program must be approved by the School's Program Coordinator. The major's structure is flexible enough to permit the completion of a minor or a double major. The major leads to the degree of Bachelor of Arts.

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 major 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 period 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, and Industrial 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 (ACerS), 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

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.

Four-Year Engineering Academic Programs

Recommended Course Sequence for a B.A. Degree with a Major in Applied & Engineering Sciences

First Semester

Eng 101 Composition I	3
Mth 105 Introduction to Calculus I or 111 Calculus I	4
Core Requirement	3
Egr 121 Technological Survival	3
PE 100 Activity	0
CST 101 Core Studies I	1
	14

Second Semester

Eng 102 Composition II	3
Mth 106 Introduction to Calculus II or 111 Calculus II	4
Core Requirement	3
Free Electives	6
PE 100 Activity	0
	16

Third Semester

Chm 115 Elements and Compounds	4
Phy 105 Introductory Physics I or 201 Physics I	4
Egr 181 CADD Lab	1
Core Requirement	3
Free Elective	3
	15

Fourth Semester

Chm 118 Chemistry for Engineers	3
Phy 106 Introductory Physics II or 202 Physics II	4
Computer Science Elective	3
Core Requirement	3
Free Elective	3
	16

Fifth Semester

Phy 221 Electronics Instrumentation	3
ME 231 Statics & Dynamics	3
Science & Engineering Electives	3-4
Core Requirement	3
Free Elective	3
	15-16

Sixth Semester

EE 211 Circuit Theory	3
MaE 210 Materials Engineering	3
Science & Engineering Electives	6
Core Requirement	3
Free Elective	3
	18

Seventh Semester

Egr 391 Senior Project I	1
Soc 391 Social Soundness Analysis I	1
Science & Engineering Electives	9
Core Requirement	3
Free Elective	3
	17

Eighth Semester

Egr 392 Senior Project II	2
Soc 392 Social Soundness Analysis II	2
Science & Engineering Electives	6
Core Requirement	3
Free Elective	3
	16

The Science & Engineering Electives, the Free Electives, and the Core Electives must be selected from a program outline approved and documented in advance by the program coordinator and the student's advisor. One course in the area of project management is required in the senior year. A minimum of six credits is required in 300-level courses in Science and Engineering Electives.

Core Requirements constitute a total of fifteen credits in Culture & Value, three in Artistic Expression, and six in Society & Human Behavior, selected to satisfy the distribution requirements.

Recommended Course Sequence for a B.S. Degree in Electrical Engineering

First Semester

Chm 115 Elements and Compounds	4
Mth 111 Calculus I	4
Egr 121 Technological Survival	3
Egr 181 CADD Lab	1
Eng 101 Composition I	3
CST 101 Core Studies I	1
PE 100 Activity	0
	16

Second Semester

Chm 118 Chemistry for Engineers	3
Mth 112 Calculus II	4
Egr 244 FORTRAN	3
Phy 201 General Physics I	4
Eng 102 English Composition II	3
PE 100 Activity	0
	17

Third Semester

EE 211 Circuit Theory I	3
Mth 211 Intro. to Differential Equations	4
Phy 202 General Physics II	4
ME 231 Statics & Dynamics	3
Egr 283 Measurement Lab I	1
Core Requirement	3
	18

Fourth Semester

EE 212 Circuit Theory II	3
Mth 212 Multivariable Calculus	4
Phy 203 General Physics III	3
ME 232 Strength of Materials or 224 Heat and Mass Transfer	3
Egr 284 Measurement Lab II	1
MaE 210 Materials Engineering	3
	17

Fifth Semester

EE 251 Electronics I	3
EE 253 Electronic Lab I	1
EE 341 Digital Design	3
EE 214 Linear Systems	3
EE Elective	3
Core Requirement	3
	16

Sixth Semester

EE 252 Electronics II	3
EE 254 Electronic Lab II	1
EE 336 Electromagnetics and Transmission Lines	4
EE 272 Solid State Devices	3
EE Elective	3
Core Requirement	3
	17

Seventh Semester

EE 321 Electromechanical Energy Conversion	3
EE 337 Waveguides & Antennas	3
EE 381 Microelectronics Lab	4
EE 391 Senior Projects I	1
EE Elective	3
Core Requirements	4
	18

Eighth Semester

EE 382 Comm. & Antenna Lab	4
EE 392 Senior Projects II	2
EE 323 Machines & Controls Lab	1
EE Elective	3
Core Requirements	8
	18

EE electives may be chosen from any mathematics, science or engineering course numbered 200 or above, with at least nine credits from three of the following areas: Communications; Computers; Controls; Electronic Materials; Power; Engineering Management (Engineering Management not to exceed 3 credits). Students desiring concentrations should consult their advisor for proper EE electives.

Core Requirements are selected to satisfy the distribution requirement. It is strongly recommended that Soc 391 & 392 be taken along with EE 391 & 392.

The required EE 336 and 337 sequence can be satisfied by the combination of Phy 331, 332, 334, and EE 335.

Recommended Course Sequence for a B.S. Degree in Engineering Management

First Semester		Second Semester	
Chm 115 Elements and Compounds	4	Chm 118 Chemistry for Engineers	3
Mth 111 Calculus I	4	Mth 112 Calculus II	4
Egr 121 Technological Survival	3	Egr 244 FORTRAN	3
Egr 181 CADD Lab	1	Phy 201 General Physics I	4
Eng 101 Composition I	3	Eng 102 Composition II	3
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		
	16		17
Third Semester		**Fourth Semester**	
EE 211 Circuit Theory I	3	MaE 210 Materials Engineering	3
ME 231 Statics & Dynamics	3	ME 232 Strength of Materials	3
Phy 202 General Physics I	4	or 224 Heat and Mass Transfer	
Egr 283 Measurement Lab I	1	Egr 284 Measurement Lab II	1
Mth 211 Intro. to Differential Equations	4	Mth 150 Statistics	3
Ec 101 Economics I	3	Acc 121 Intro. to Financial Accounting	3
		Core Requirement	3
	18		16
Fifth Semester		**Sixth Semester**	
Egr 371 Analysis & Prog. Methods	3	Egr 376 Engineering & Management	3
BA 225 Managerial Finance	3	Models	
BA 351 Management of Organizations	3	BA 233 Business Law — Legal Env.	3
Technical Electives	6	or 234 Business Law —	
Core Requirement	3	Technical Electives	6
		Core Requirements	6
	18		18
Seventh Semester		**Eighth Semester**	
Egr 391 Senior Projects I	1	Egr 392 Senior Projects II	2
BA 222 Marketing	3	EES 240 Principles of Environmental	4
Technical Electives	6	Science	
Engineering Management Elective	3	Technical Electives	6
Core Requirements	4	Engineering Management Elective	3
		Core Requirement	2
	17		17

Technical Electives must follow the approved engineering and science courses of the declared concentration in Electrical, Environmental, Manufacturing, Materials or Mechanical. Consult your advisor for advanced preference program outline.

Engineering Management Electives may be satisfied by engineering management courses, independent research, or internship.

Core Requirements are selected to satisfy the distribution requirement. It is strongly recommended that Soc 391 & 392 be taken along with Egr 391 & 392.

Recommended Course Sequence for a B.S. Degree in Environmental Engineering

First Semester		Second Semester	
Chm 115 Elements and Compounds	4	Chm 118 Chemistry for Engineers	3
Mth 111 Calculus I	4	Mth 112 Calculus II	4
Egr 121 Technological Survival	3	Egr 244 FORTRAN	3
Egr 181 CADD Lab	1	Phy 201 General Physics I	4
Eng 101 Composition I	3	Eng 102 Composition II	3
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		
	16		17
Third Semester		**Fourth Semester**	
Mth 211 Intro. to Differential Equations	4	Mth 212 Multivariable Calculus	4
Phy 202 General Physics II	4	EES 240 Principles of Env. Science	4
Egr 283 Measurement Lab I	1	Egr 284 Measurement Lab II	1
EE 211 Circuit Theory I	3	MaE 210 Materials Engineering	3
ME 231 Statics & Dynamics	3	ME 224 Heat and Mass Transfer	3
Core Requirement	3	Core Requirement	3
	18		18
Fifth Semester		**Sixth Semester**	
Bio 121 Modern Biology I	4	Bio 122 Modern Biology II	4
or Chm 231 Organic Chemistry I		or Chm 232 Organic Chemistry II	
EES 330 Advanced EQM I	4-3	EES 331 Advanced EQM II	4-3
or 320 Hydrology		or 305 Hazardous Solid Waste	
EES 211 Physical Geology	4	ME 232 Strength of Materials	3
ME 321 Fluid Mechanics	3	Core Requirements	6
Core Requirement	3		
	18-17		17-16
Seventh Semester		**Eighth Semester**	
Egr 391 Senior Projects I	1	Egr 392 Senior Projects II	2
EES 330 Advanced EQM I	4-3	EES 331 Advanced EQM II	4-3
or 320 Hydrology		or 305 Hazardous Solid Waste	
EES 251 Synoptic Meteorology	4	Technical Elective	6
Technical Elective	6	Core Requirements	5
Core Requirement	1		
	16-15		17-16

Technical Electives are to be chosen from engineering courses numbered 200 or above including MaE 234 or 332, one 300 level EES, and an Engineering Management course. Consult with your advisor for proper biology sequencing and program outline.

Core Requirements are selected to satisfy the distribution requirement. It is strongly recommended that Soc 391 & 392 be taken along with Egr 391 & 392.

Recommended Course Sequence for a B.S. Degree in Materials Engineering

First Semester

Chm 115 Elements and Compounds	4
Mth 111 Calculus I	4
Egr 121 Technological Survival	3
Egr 181 CADD Lab	1
Eng 101 Composition I	3
CST 101 Core Studies I	1
PE 100 Activity	0
	16

Second Semester

Chm 118 Chemistry for Engineers	3
Mth 112 Calculus II	4
Egr 244 FORTRAN	3
Phy 201 General Physics I	4
Eng 102 Composition II	3
PE 100 Activity	0
	17

Third Semester

Mth 211 Intro. to Differential Equations	4
Phy 202 General Physics II	4
EE 211 Circuit Theory I	3
ME 231 Statics & Dynamics	3
Egr 283 Measurement Lab I	1
Core Requirement	3
	18

Fourth Semester

Mth 212 Multivariable Calculus	4
Phy 203 General Physics III	3
ME 224 Heat and Mass Transfer	3
ME 232 Strength of Materials	3
Egr 284 Measurement Lab II	1
MaE 210 Materials Engineering	3
	17

Fifth Semester

Chm 231 Organic Chemistry I	4
MaE 311 X-Ray Diffraction	3-4
or 321 Thermo & Phase Equilibria I	
MaE 241 Physical Metallurgy	3
or 231 Ceramics	
MaE Elective	3
Core Requirement	3
	16-17

Sixth Semester

MaE Elective	3
MaE 332 Engineering Polymers	3
or 322 Thermo & Phase Equilibria II	
MaE 342 Mechanical Metallurgy	3
or 234 Electrochemistry	
EE 272 Solid State Devices	3
Core Requirements	6
	18

Seventh Semester

MaE 311 X-Ray Diffraction	4-3
or 321 Thermo & Phase Equilibria I	
MaE 241 Physical Metallurgy	3
or 231 Ceramics	
MaE 381 Adv. Materials Lab I	3
MaE 391 Senior Projects I	1
MaE Elective	3
Core Requirements	4
	18-17

Eighth Semester

MaE 332 Engineering Polymers	3
or 322 Thermo & Phase Equilibria II	
MaE 342 Mechanical Metallurgy	3
or 234 Electrochemistry	
MaE 392 Senior Projects II	2
MaE Elective	3
Core Requirements	5
	16

MaE electives may be chosen from any mathematics, science or engineering course numbered 200 or above, with at least six credits in engineering courses including Engineering Management (Engineering Management not to exceed 3 credits). Students desiring electronic materials concentration should select the sequence EE 251, 253, and 381.

Core Requirements are selected to satisfy the distribution requirement. It is strongly recommended that Soc 391 & 392 be taken along with MaE 391 & 392.

Recommended Course Sequence for a B.S. Degree in Mechanical Engineering

First Semester

Chm 115 Elements and Compounds	4
Mth 111 Calculus I	4
Egr 121 Technological Survival	3
Egr 181 CADD Lab	1
Eng 101 Composition I	3
PE 100 Activity	0
Core Studies I	1
	16

Second Semester

Chm 118 Chemistry for Engineers	3
Mth 112 Calculus II	4
Egr 244 FORTRAN	3
Phy 201 General Physics I	4
Eng 102 Composition II	3
PE 100 Activity	0
	17

Third Semester

Mth 211 Intro. to Differential Equations	4
EE 211 Circuit Theory I	3
ME 231 Statics & Dynamics	3
Phy 202 General Physics II	4
Egr 283 Measurement Lab I	1
Core Requirement	3
	18

Fourth Semester

Mth 212 Multivariable Calculus	4
Phy 340 Thermodynamics	3
or ME 332 Dynamics & Vibration	
ME 232 Strength of Materials	3
Egr 284 Measurement Lab II	1
MaE 210 Materials Engineering	3
Core Requirement	3
	17

Fifth Semester

ME 211 Introduction to Manufacturing	3
ME 321 Fluid Mechanics	3
ME 323 Fluid Mechanics Lab	1
Phy 221 Electronic Instruments	3
ME Elective	3
Core Requirement	3
	16

Sixth Semester

ME 332 Dynamics & Vibration	3
or Phy 340 Thermodynamics	
ME 224 Heat Transfer	3
ME 226 Heat Transfer Lab	1
EE 314 Control Systems	3
ME Elective	3
Core Requirement	3
	16

Seventh Semester

ME 391 Senior Projects I	1
ME 333 Machine Design	3
ME 315 Computer Integrated	3
Manufacturing	
EE 316 Robotics	3
ME Elective	3
Core Requirements	4
	17

Eighth Semester

ME 392 Senior Projects II	2
ME 384 Mechanical Design Lab	4
Egr 270 Engineering Project Analysis	3
ME Elective	3
Core Requirements	5
	17

ME Electives may be chosen from any mathematics, science or engineering course numbered 200 or above, with at least 6 credits in engineering. Students desiring concentrations should consult their advisor for proper ME electives.

Core Requirements constitute a total of twelve credits in Culture & Value, three in Creative & Artistic Expression, and three in Society & Human Behavior, selected to satisfy the distribution requirements.

Two-Year Pre-Engineering Academic Programs

Recommended Course Sequence

Aerospace Engineering
Civil Engineering

First Semester		Second Semester	
Chm 115 Elements and Compounds	4	Chm 118 Chemistry for Engineers	3
Mth 111 Calculus I	4	Mth 112 Calculus II	4
Egr 121 Technological Survival	3	Egr 244 FORTRAN	3
Egr 181 CADD Lab	1	Phy 201 General Physics I	4
Eng 101 Composition I	3	Eng 102 Composition II	3
PE 100 Activity	0	PE 100 Activity	0
CST 101 Core Studies I	1		
	16		17

Third Semester		Fourth Semester	
EE 211 Circuit Theory I	3	ME 232 Strength of Materials	3
ME 231 Statics & Dynamics	3	or 224 Heat and Mass Transfer	
Egr 283 Measurement Lab I	1	Egr 284 Measurement Lab II	1
Mth 211 Intro. to Differential Equations	4	MaE 210 Materials Engineering	3
Phy 202 General Physics II	4	Mth 212 Multivariable Calculus	4
Core Requirement	3	Phy 203 General Physics III	3
		Core Requirement	3
	18		17

Chemical Engineering

First Semester		Second Semester	
Chm 115 Elements and Compounds	4	Chm 118 Chemistry for Engineers	3
Mth 111 Calculus I	4	Mth 112 Calculus II	4
Egr 121 Technological Survival	3	Egr 244 FORTRAN	3
Egr 181 CADD Lab	1	Phy 201 General Physics I	4
Eng 101 Composition I	3	Eng 102 Composition II	3
PE 100 Activity	0	PE 100 Activity	0
CST 101 Core Studies I	1		
	16		17

Third Semester		Fourth Semester	
Chm 231 Organic Chemistry I	4	Chm Elective (200 or above)	3-4
EE 211 Circuit Theory I	3	Egr 284 Measurement Lab II	1
Egr 283 Measurement Lab I	1	MaE 210 Materials Engineering	3
Mth 211 Intro. to Differential Equations	4	Mth 212 Multivariable Calculus	4
Phy 202 General Physics II	4	Phy 203 General Physics III	3
Core Requirement	3	Core Requirement	3
	19		17-18

Industrial Engineering

First Semester		Second Semester	
Chm 115 Elements and Compounds	4	Chm 118 Chemistry for Engineers	3
Mth 111 Calculus I	4	Mth 112 Calculus II	4
Egr 121 Technological Survival	3	Egr 244 FORTRAN	3
Egr 181 CADD Lab	1	Phy 201 General Physics I	4
Eng 101 Composition I	3	Eng 102 Composition II	3
PE 100 Activity	0	PE 100 Activity	0
CST 101 Core Studies I	1		
	16		17

Third Semester		Fourth Semester	
Mth 211 Intro. to Differential Equations	4	Mth 212 Multivariable Calculus	4
Egr 283 Measurement Lab I	1	Egr 284 Measurement Lab II	1
EE 211 Circuit Theory I	3	BA 252 Operations & Systems Man.	3
ME 231 Statics & Dynamics	3	or Core Requirement	
Phy 202 General Physics II	4	ME 232 Strength of Materials	3
Core Requirement	3	or 224 Heat and Mass Transfer	
	18	MaE 210 Materials Engineering	3
		Core Requirement	3
			17

General Engineering

EGR 121. TECHNOLOGICAL SURVIVAL **Three credits**

An introduction to the techniques of analysis and problem solving in engineering and the sciences. Also a presentation and discussion of scientific and technical world views. Emphasis on visualization with symbolic, verbal, and written communication. Introduction to selected mathematical topics including vectors and matrices. Modeling, examples of physical law, engineering design, and problem solving using computers. Selected current topics with technical merit or likely impact on the future, and a cooperative design project. Three hours lecture/recitation per week.

Prerequisite: Familiarity with Algebra and Geometry.

EGR 181. CADD LAB **One credit**

An introduction to the symbolic and visual languages used in the various engineering fields. The use of the computer in design and drafting and familiarization with various software packages in the CADD (Computer Aided Design and Drafting) laboratory. Blueprint reading and printed circuit layouts. Emphasis will also be placed on the representation and interpretation of data in graphical form as well as the fundamentals of 2-dimensional and 3-dimensional graphic formats. Two hours lecture/laboratory per week. Fee: $20.

Prerequisite: To be taken along with or after Egr 121.

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: $50. (see CS 123)

EGR 245. COMPUTER SCIENCE I **Three credits**

An introduction to the fundamental concepts of computer science, with emphasis on problem solving and algorithm design using the Pascal programming language. Fee: $50. (same as CS 125)

Prerequisite: Secondary mathematics including geometry and algebra II.

Offered every spring and fall.

EGR 246. COMPUTER SCIENCE II **Three credits**

A study of advanced programming techniques (including recursion and manipulation of structured data types and pointer variables) and abstract linear data structures (lists, stacks, and queues). Fee: $50. (same as CS 126)

Prerequisite: CS 125 (Egr 245).

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 emphasized include X-ray, ultrasonics, and coronary care devices.

Prerequisite: Junior or senior standing in engineering or science.

EGR 270. ENGINEERING PROJECT ANALYSIS **Three credits**

Economic analysis of evaluating cash flows over time. Depreciations: techniques and strategies. Replacement analysis, break even analysis, benefit/cost ratio evaluation. Evaluating a single project-deterministic criteria and techniques. Multiple projects and constraints. Risk analysis and uncertainty. Models of project selections. Project selection using capital asset pricing theory.

Prerequisite: Junior or senior standing in engineering.

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: $35 per semester.

EGR 342. MACHINE LANGUAGE **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: $50. (see CS 230)

Prerequisite: Egr 246/CS 126.

EGR 360. INDUSTRIAL TRAINING **One to six credits**

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 **Three credits**

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.

Prerequisite: Junior standing or consent of instructor.

EGR 372. ENERGY MANAGEMENT ENGINEERING **Three credits**

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 process. 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.

EGR 391. SENIOR PROJECTS I **One credit**

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 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 chairperson.

EGR 397. SEMINAR **One to three credits**

Presentations and discussions of selected topics and projects.

Prerequisite: Senior engineering standing.

EGR 399. COOPERATIVE EDUCATION **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

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.

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 **Three credits**

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 **One credit**

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: $50.

Prerequisite: To be taken along with or after EE 251.

EE 254. ELECTRONIC LABORATORY II **One credit**

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: $50.

Prerequisite: To be taken along with or after EE 252.

EE 271. PHYSICAL ELECTRONICS **Three credits**

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 **Three credits**

Basic properties of semiconductors and their conduction processes, with special emphasis on silicon and gallium arsenide. Physics and characterization of p-n junctions. Homojunction and heterojunction bipolar transistors. Unipolar devices including MOS capacitor and MOSFET. Microwave and Photonic devices.

Prerequisite: Basic concepts of Materials Engineering, Modern Physics, including basic quantum and statistical mechanics.

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 **Three credits**

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. ELECTROMECHANICAL ENERGY CONVERSION **Three credits**

Direct energy conversion: Solar, photovoltaic, thermionic and thermoelectric converters, fuel cells, MHD generators. Electromechanical energy conversion: Magnetic circuits, force and torque in magnetic circuits. Principle of operation, construction and application of transformers, DC machines, synchronous and induction machines. Per unit calculations and power system representation.

Prerequisite: EE 211.

EE 323. MACHINES AND CONTROLS LABORATORY **One credit**

No load and load tests on Transformers, DC Machines, Synchronous Machines, and Induction Motors. Three Phase Transformer Connections, Parallel operation of alternators. Control of DC motors and induction motors using SCRs. Fee $45.

Prerequisite: To be taken along with or after EE 321.

EE 335. MICROWAVES AND ANTENNA SYSTEMS **Three credits**

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 336. ELECTROMAGNETICS AND TRANSMISSION LINES **Four credits**

Vector calculus; concepts of flux and fields; electrostatic and magneto static fields; time-varying Maxwell's equations; boundary conditions and boundary value problems; plane wave propagation, reflection and refraction; transmission line, Smith chart, and impedence matching. Three hours lecture and one one-hour simulation lab a week. Fee: $45.

Prerequisites: Mth 212 and Phy 202.

EE 337. WAVEGUIDES AND ANTENNAS **Three credits**

Guided TE and TM waves; cavities and resonant circuits; strip line; S-parameters and micro-

wave devices; directional coupler, attenuator, frequency meter; electromagnetic radiation; dipole antenna; antenna arrays. Two hours lecture and one three-hour laboratory a week. Fee: $15.

Prerequisite: EE 336.

EE 341. DIGITAL DESIGN **Three credits**

Boolean Algebra; Application Specific Integrated Circuit (ASIC) digital logic functions, such as AND, OR, INVERT; digital storage devices; combinational logic; minimization techniques; synchronous and asynchronous design; delay analysis; state machines; ASIC's. Two hours lecture a week and one two-hour of lab a week. Fee: $50. (same as CS 320)

Prerequisite: Junior standing.

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: $50. (same as CS 329)

Prerequisite: EE 341/CS 320.

EE 343. COMPUTER DATA STRUCTURES **Three credits**

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: $50. (see CS 227)

Prerequisite: Egr 246.

EE 344. OPERATING SYSTEM PRINCIPLES **Three credits**

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 **Three credits**

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 **Three credits**

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 **Three credits**

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 **Three credits**

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.

Prerequisites: EE 272 and EE 332.

EE 381. 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: $50.

Prerequisite: Senior engineering standing.

EE 382. 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: $50.

Prerequisite: EE 335, or EE 337, or consent of instructor.

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 chairperson is required.

EE 397. SENIOR SEMINAR **One to three credits**

Presentations and discussions of selected topics.

Prerequisite: Senior engineering standing.

EE 398. 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; 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.

EE 399. COOPERATIVE EDUCATION **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

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. (same as Phy 210)

Prerequisites: 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.

MAE 241. PHYSICAL METALLURGY — **Three credits**

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 — **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-ray diffraction techniques. Three hours lecture and one three-hour laboratory a week. Fee: $50. (same as Phy 323)

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: $40.

Prerequisite: MaE 210.

MAE 332. POLYMERS — **Three credits**

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)

Prerequisites: MaE 210 and Chm 231.

MAE 342. MECHANICAL METALLURGY — **Three credits**

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: $40.

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: $50 per semester.

Prerequisite: Senior MaE standing.

MAE 384. MATERIALS DIAGNOSTIC LABORATORY — **Three credits**

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: $50.

Prerequisite: MaE 210.

MAE 391. SENIOR PROJECTS I — **One credit**

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 — **Two credits**

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 chairperson is required.

MAE 397. SENIOR SEMINAR — **One to three credits**

Presentations and discussions of selected topics.

Prerequisite: Senior standing in engineering.

MAE 398. TOPICS IN MATERIALS ENGINEERING — **Three credits**

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.

MAE 399. COOPERATIVE EDUCATION **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

Mechanical Engineering

ME 211. INTRODUCTION TO MANUFACTURING **Three credits**

An introduction to manufacturing focusing on the historical manufacturing processes as well as current topics of interest, such as computer-integrated manufacturing, numerical control, and quality control. Three hours lecture a week.

Prerequisite: Junior standing in engineering or consent of instructor.

ME 213. FACTORY SIMULATION **Three credits**

Introduction to system analysis and simulation, principles of manufacturing systems, and the analysis of discrete computer simulation models. Associated laboratory experiments consider introduction to SIMFACTORY; and design analysis and control of computer simulation model in the factory. Two-hour lecture and two-hour laboratory a week. Fee: $40.

Prerequisite: Junior/senior standing in ME.

ME 214. FLEXIBLE MANUFACTURING SYSTEM **Three credits**

Introduction to CAD/CAM, computer assisted process planning, group technology, manufacturing control by computer, NC/CNC/DNC, programmable controllers, robotics, automation, flexible manufacturing system (FMS), computer integrated manufacturing (CIM). Associated laboratory experiments consider the operation of NC/CNC/DNC, robotics, and FMS. Two-hour lecture and two-hour laboratory a week. Fee: $40.

Prerequisite: Junior/senior standing in ME.

ME 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.

Prerequisites: Phy 201 and Mth 211.

ME 226. HEAT TRANSFER LABORATORY **One credit**

Basic heat transfer modes are demonstrated experimentally. This includes conduction, convection, and radiation of heat as well as fin and heat exchanger. One two-hour lab per week. Fee: $40.

Prerequisite: Concurrent with or after ME 224.

ME 231. STATICS AND DYNAMICS **Three credits**

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.

ME 232. STRENGTH OF MATERIALS **Three credits**

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.

ME 234. KINEMATICS **Three credits**

Analytical graphical solutions for displacements, velocities and accelerations in mechanism. Synthesis of linkages and CAMS. Gears and gear trains. Computing mechanisms. Three one-hour lectures per week.

Prerequisite: ME 231.

ME 298. TOPICS IN MECHANICAL ENGINEERING **One to three credits**

Selected topics in the field of mechanical engineering.

Prerequisite: Sophomore or junior standing or permission of instructor.

ME 312. MANUFACTURING SYSTEM ENGINEERING **Three credits**

Fundamentals of Manufacturing Systems, process systems for manufacturing, management systems for manufacturing optimization and economics of manufacturing, automation in manufacturing systems, information systems for manufacturing. Three one-hour lectures.

Prerequisite: Senior standing in ME.

ME 313. PRODUCTION SYSTEM ANALYSIS **Three credits**

Manufacturing planning and control, material requirement planning, capacity planning, shop-floor control, just-in-time in manufacturing, master production scheduling, production planning, demand management, distribution requirements. Three hours lecture a week.

Prerequisite: Junior/senior standing in ME.

ME 315. COMPUTER INTEGRATED MANUFACTURING **Three credits**

The meaning of the "I" in CIM: Data and Operations Integrations. A typical CIM chain. CIM Integration model. The component of CIM: Stages of Development of CIM components; Computer-Aided Design (CAD); Computer-Aided Planning (CAP); Computer-Aided Manufacturing (CAM); Computer-Quality Assurance (CAQ). Interfaces between CIM components. Implementation of CIM: Methods of developing a CIM strategy; CIM prototypes. Further development: Design state cost estimation. Decision support system in CIM. Two one-hour lectures and two hours lab. Fee: $40.

Prerequisite: Senior standing in ME.

ME 316. EXPERT SYSTEMS IN CIM **Three credits**

Design of a prototype expert system using microcomputer to aid in the planning and control of manufacturing systems. Presents a number of computer models to enhance decision making in such areas as forecasting, inventory, production planning, scheduling, material requirement planning, and goal planning. Design of the prototype expert system by combining those models into several knowledge based systems. Two hours lecture and two hours laboratory. Fee: $40.

Prerequisite: Junior/senior standing in ME.

ME 317. QUALITY CONTROL ENGINEERING **Three credits**

Quality control in the manufacturing environment; statistical methods used in quality assurance; statistical process control; acceptance sampling prerequisite. Three one-hour lectures per week.

Prerequisite: Mth 150 or consent of instructor.

ME 321. FLUID MECHANICS **Three credits**

Thermodynamics and dynamic principles applied to fluid behavior, ideal, viscous, and compressible fluids under internal and external flow conditions. (same as Phy 213)

Prerequisite: Egr 231.

ME 323. FLUID MECHANICS LABORATORY **One credit**

Experiments with and analysis of basic fluid phenomena hydrostatic pressure, Bernoulli theorem, laminar and turbulent flow, pipe friction, and drag coefficient. One three-hour lab per week. Fee: $40.

Prerequisite: Concurrent or after ME 321.

ME 325. ENERGY SYSTEMS **Three credits**

Fundamental principles of energy transmission and energy conversion. Comprehension of the physical systems in which the conversion of energy is accomplished. Primary factors necessary in the design and performance analysis of energy systems. Three hours lecture per week.

Prerequisites: Phy 340, ME 224.

ME 326. COMBUSTION ENGINES **Three credits**

Investigation and analysis of internal and external combustion engines with respect to automotive applications. Consideration of fuels, carburetion, combustion, detonation, design factors, exhaust emissions, and alternative power plants. Three one-hour lectures per week.

Prerequisite: Phy 340.

ME 331. STRUCTURAL ANALYSIS AND DESIGN **Three credits**

Stress tensor and analysis of strain. Laws of conservation and basic equations of elastic and viscoelastic bodies. Plane stress and plane strain, theory of extension, torsion and flexure of beams. Introduction to energy methods and elastic stability. Three hours lecture per week.

Prerequisite: ME 232.

ME 332. DYNAMICS & VIBRATION **Three credits**

An introductory course in mechanical vibration dealing with free and forced vibration of single and multi-degrees of freedom for linear and nonlinear systems. Three one-hour lectures per week.

Prerequisites: Mth 211, ME 231.

ME 333. MACHINE DESIGN **Three credits**

A first course in the design of machine elements, dealing with theories of failure, strength and endurance limit, fluctuating stresses, fatigue, design under torsional and combined stresses. Design of bolted connections, fasteners, welds, springs, balled roller bearings, gears, clutches, brakes, belts, and chains. Three one-hour lectures per week.

Prerequisites: ME 232, 332.

ME 335. ENGINEERING MODELING AND ANALYSIS **Three credits**

Introduction to finite element method for static and dynamic modeling and analysis of engineering systems. Finite element formulation and computer modeling techniques for stress, plane strain, beams, axisymmetric solids, heat conduction, and fluid flow problems. Solution of finite element equation and post processing of results for further use in the design problem. Three one-hour lectures per week.

Prerequisites: Egr 244, ME 232.

ME 336. CAE IN MECHANICAL DESIGN **Three credits**

Computer techniques for the design of mechanical systems and components. Engineering software development including computer graphics. System design of individual applications of mechanical and thermal components. Two hour lecture and two hour laboratory. Fee: $40.

Prerequisites: ME 224, 232.

ME 384. MECHANICAL DESIGN LABORATORY **Four credits**

Advanced open-ended laboratory simulating RD&D environment. Emphasis on experimental performance, evaluations, and design. Topics include mechanical system, thermo/fluids, manufacturing processes, and mechanics. One six-hour lab per week. Fee: $50.

Prerequisite: Senior standing in mechanical engineering.

ME 391. SENIOR PROJECTS I **One credit**

Design and development of selected projects in the field of mechanical engineering under the direction of a staff member. Technical as well as economic factors will be considered in the design. A detailed progress report is required.

Prerequisite: Senior standing in mechanical engineering.

ME 392. SENIOR PROJECTS II **Two credits**

Design and development of selected projects in the various fields of mechanical 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 reports are required. This is a continuation of ME 391. An open-forum presentation and discussion of the professional paper is required.

Prerequisite: ME 391.

ME 395-396. INDEPENDENT RESEARCH **One to three credits**

Independent study and research for advanced students in the field of mechanical engineering 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 chairperson is required.

ME 397. SEMINAR **One to three credits**

Presentations and discussions of selected topics.

Prerequisite: Senior standing or by special departmental permission.

ME 398. TOPICS IN MECHANICAL ENGINEERING **One to three credits**

Selected topics in the field of mechanical engineering. These may include one or more of the following: control systems, automation, robotics, manufacturing systems, solid Mechanics, energy systems, fluid flow, acoustics, computer systems, bio-mechanics. May be repeated for credit.

Prerequisite: Junior or senior engineering standing.

ME 399. COOPERATIVE EDUCATION **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

HEALTH SCIENCES

Dr. Ralph B. Rozelle, Dean of Health Sciences.

Premedical Advisors Council: Dr. Turoczi, Chairperson and Professor of Biology; Dr. Charnetski, Professor of Psychology; Dr. Armand, Associate Professor of Engineering; Dr. Maxwell, Associate Professor of Physics; Dr. M. Steele, Assistant Professor of Biology; Dr. Wignot, Assistant Professor of Biochemistry; Dr. Kopen, Physician and Member of the Wilkes Board of Trustees.

Preprofessional and Allied Health Programs Advisors Council: Dr. Rozelle, Chairperson and Professor of Chemistry; Dr. Charnetski, Professor of Psychology; Dr. Garr, Associate Professor of Sociology; Ms. Saueraker, Associate Professor of Nursing; Dr. Kucirka, Assistant Professor of Physics; Dr. Long, Assistant Professor of Biology; Mr. Davis, Dean of Admissions.

Premedical Programs

Overview

Wilkes University offers premedical studies programs which share a fundamental and formative premise — that unprecedented technological and scientific dynamism will characterize the context of medical careers conducted in the next thirty to fifty years. Such dynamism has important implications for the future physician's baccalaureate studies, including the need to master computer-based information access systems, to reach a level of mastery in the sciences permitting independent judgment and research, and to grow in ethical sensitivity and sophistication. Drawing on the University's strengths in science, information systems, engineering, and the humanities, Wilkes has defined an approach to premedical education which produces exceptionally competent, and competitive, candidates for admission to the nation's leading schools of medicine.

The Wilkes premedical graduate stands out first of all because he or she is not only broadly trained but also has mastered the new and rapidly evolving medical information technologies. Throughout the science curriculum at Wilkes, students are exposed to and use databases which relate fully up-to-date information at the cutting edge of research in science fields. Interviews with medical school professors and admissions officers indicate that such information access skills are increasingly relevant and will soon be essential for the medical practitioner. As a comprehensive university, with a full range of bachelor's and master's degree programs in engineering, computer science, and the natural sciences, Wilkes provides a sophisticated, research-capable science environment, in which students learn how to negotiate the information-rich, but highly complex world of scientific database communications.

The future medical practitioner will also be called upon to assess and implement promising information emerging in the fields of molecular biology, biochemistry, cell biology, and organic chemistry. A general exposure to science at the undergraduate level, typical of liberal arts college premedical studies, will no longer be sufficient to prepare medical students and practi-

tioners to be fully competent as professionals. Wilkes's science-intensive premedical program involves students in research projects and applications activities during their undergraduate years and helps them thereby to gain real mastery as scientists able to make independent judgments and to conceptualize and conduct independent research. The new medicine makes obsolete the former dichotomous categorization of science and preprofessional studies, in that the superior physician will increasingly have to be a research-capable scientist him or herself. Premedical studies at Wilkes have adapted to this trend well in advance of programs at most other institutions.

Databased information and scientific dynamism make more, not less, necessary attention to the moral and ethical dimensions of premedical studies. Through its nationally recognized program of core curricular studies, Wilkes provides the future physician with highly meaningful learning experience in philosophy, ethics, and social problems. The Wilkes Core includes a special seminar in Culture and Value, recommended for all premedical students, which examines the foundations of distinct and often contradictory approaches to issues of ethics and social policy. Premedical students are also advised to complete both Introduction to Philosophy and Ethics as parts of their general studies curricula. These learning experiences are augmented by the robust atmosphere of intellectual discussion and debate, which has long been one of Wilkes's distinguishing institutional characteristics, as a non-denominational, non-sectarian university at which issues of morality and ethics are taken seriously. In this way, as in other areas, Wilkes prepares its premedical students for the real world in which they will function as professionals.

The descriptions of courses and curricula, which follow, put into practice what we at Wilkes believe to be a forward-looking program of premedical studies.

Choice of Academic Major, Advisement, and Placement

The premedical curriculum at Wilkes University offers a broad range of choice of academic majors to students. Many major in biology, chemistry, or one of the other traditional science or engineering programs. The newest majors in Medical and Health Physics, Biochemistry, and Applied and Engineering Sciences provide alternative and innovative preparation to students seeking careers in the medical and health fields. Students who have majored in the traditional liberal arts and mathematics have also 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.

An important component of the Wilkes premedical education is its counseling and advising system. The Wilkes tradition of close student advising permits thorough understanding of the student's aspirations and goals. A

faculty advisor is assigned to the student in his or her major field of choice. In addition, the student is advised of the particulars of medical education by a member of the Premedical Advisors Council.

Wilkes enjoys an enviable record of placement of students in medical school, with acceptance rates of over 90%. Allopathic medical schools accepting Wilkes 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 out-of-state medical schools such as Harvard, Stanford, George Washington, Georgetown, Tulane and Yale. A number of Wilkes students also enter Osteopathic Medical schools, such as the Philadelphia College of Osteopathic Medicine.

The Wilkes Premedical Core

A unique feature of Wilkes's premedical education is the "premed core". This is a sequence of courses which is required of all students aspiring to enter medical schools. This core not only includes the traditional requirements of medical schools but also capitalizes on the University's strengths in the sciences and engineering and addresses new developments in medical schools. Among these requirements is a meaningful research or project experience, a practicum and observation experience provided by local physicians and professionals, knowledge and utilization of computers in medicine, and meaningful laboratory background with emphasis on the understanding and use of modern instrumentation. The Wilkes premed core includes:

3 courses in Modern Biology including Comparative Anatomy
5 courses in Chemistry including Biochemistry and Organic Chemistry
1 course in Medical Informatics
2 courses in Physics
2 courses in Mathematics (calculus)
1 Research course or a Special Project
1 Internship Experience

Allopathic Medicine

Students who wish to pursue a career in Allopathic Medicine enroll in a curriculum which will allow them to fulfill the Wilkes Premed Core. A typical allopathic premedical program is outlined. However, students are required to develop with their advisors a detailed program of study which satisfies the major of their choice.

Recommended Course Sequence for Allopathic Medicine

First Semester		Second Semester	
Bio 121 Principles of Modern Biology I	4	Bio 122 Principles of Modern Biology II	4
Chm 115 Elements and Compounds	4	Chm 116 The Chemical Reaction	4
Eng 101 Composition I	3	Eng 102 Composition II	3
Mth 105 Calculus for Life, Managerial, and Social Sciences I **or**		Mth 106 Calculus for Life, Managerial, and Social Sciences II **or**	
Mth 111 Calculus I	4	Mth 112 Calculus II	4
CST 101 Core Studies I	1	Free Electives	0-3
Free Electives	0-2	PE 100 Activity	0
PE 100 Activity	0		
	16-18		15-18

Third Semester		Fourth Semester	
Bio 221 Cellular and Molecular Biology	4	Bio 222 Comparative Anatomy	4
Chm 231 Organic Chemistry I	4	Chm 232 Organic Chemistry II	4
Psy 101 General Psychology	3	Major Requirements and Free Electives	7-10
Major Requirements and Free Electives	4-7		
	15-18		15-18

Fifth Semester		Sixth Semester	
Phy 105 Introductory Physics **or** Phy 201 General Physics I	4	Phy 106 Introductory Physics **or** Phy 202 General Physics II	4
Chm 361 Biochemistry I	3	Major Requirements and Free Electives	9-11
Major Requirements and Free Electives	9-11	Medical Informatics	3
	16-18		16-18

Seventh Semester		Eighth Semester	
Special Project/Research	1	Special Project/Research	2
Internship	1	Major Requirements and Free Electives	15
Major Requirements and Free Electives	15		
	17		17

Affiliated Degree Programs in Medicine

Wilkes has developed special programs and established transfer agreements with major medical schools which lead to a degree in medicine. Students selected to participate in such a program must satisfy all requirements articulated.

I. The Guthrie Premedical Scholars Program

Hahnemann University School of Medicine in Philadelphia, Pennsylvania, Wilkes University and Guthrie Health Care System, which includes Robert Packer Medical Center in Sayre, Pennsylvania, offer a special premedical Scholars Program for promising high school seniors. The program allows high school seniors to be assured admission to the Hahnemann University School of Medicine before they enter Wilkes University to do their undergraduate work. The program is as follows:

1. Program Format

A. Four (4) years of undergraduate premedical study at Wilkes University.
B. Four (4) years of Medical School study at Hahnemann University School of Medicine.
C. Students in the program will spend the 8th semester of undergraduate premedical study at the Robert Packer Medical Center at Sayre, Pennsylvania, doing clinical and/or basic science research and studying the rural and semi-rural Health Care Delivery System of the lower tier of New York and Northern Pennsylvania.
D. Students in the program will spend parts of the 3rd and 4th year in medical school doing required and elective clinical rotations at Robert Packer.

2. Program Admission

A. Only students with SAT scores of 1100 or above will be considered for admission to the Premedical Scholars Program.
B. Approximately 12 premedical scholars will be admitted to the Program each year.
C. Students admitted to the Program, after interviews at Wilkes, Robert Packer, and Hahnemann, will be simultaneously assured admission to medical school at Hahnemann.
D. Students who have SAT's of 1200 or above will have to maintain a GPA of 3.3 in biology, chemistry, math, and physics during their 1st three (3) years at Wilkes to complete the medical school admission requirements. (No Medical College Admission Test (MCAT) is required.)
E. Students who have SAT's below 1200 have to take the MCAT and score about the 60th percentile in each section in addition to completing part D. The minimal SAT score acceptable for entrance into the program is 1100.
F. Emphasis in recruiting will be placed on students from Pennsylvania and the lower tier of New York plus contiguous regions. Students from other regions are not, however, precluded from entering the program.

Guthrie Premedical Scholars must satisfy the Wilkes Premedical Core and will follow the **Recommended Course Sequence for Allopathic Medicine** outlined above. Students in this program are also required to develop with their advisors a detailed program of study which satisfies the major of their choice.

II. Osteopathic Medicine

Wilkes University and the Philadelphia College of Osteopathic Medicine (PCOM) have instituted a "Seven-Year Doctoral Program in Medicine."

The overall academic program requires students to complete three years in basic sciences and liberal arts education at Wilkes University and four years of medical education at Philadelphia College of Osteopathic Medicine.

Fifteen (15) qualified students per year will be admitted to PCOM at the end of their third year at Wilkes University. Following successful completion of their first year of basic science education in medical school, Wilkes will transfer thirty-six credits in the basic sciences and confer upon each the Bachelor of Science degree.

The program is governed by a Joint Admissions Committee of faculty members from both Wilkes University and PCOM who make recommendations of candidates for admission to medical school to the PCOM Committee on Admissions.

The recommended course sequence for students in the Seven-Year Doctoral Program in Medicine is as follows:

Wilkes University/Philadelphia College of Osteopathic Medicine Undergraduate/Medical School Program

First Semester		Second Semester	
Bio 121 Principles of Modern Biology	4	Bio 122 Principles of Modern Biology II	4
Chm 115 Elements and Compounds	4	Chm 116 The Chemical Reaction	4
Eng 101 Composition I	3	Eng 102 Composition II	3
Mth 105 Calculus for Life, Managerial, and Social Sciences I **or**		Mth 106 Calculus for Life, Managerial, and Social Sciences II **or**	
Mth 111 Calculus I	4	Mth 112 Calculus II	4
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		
	16		15
Third Semester		**Fourth Semester**	
Chm 231 Organic Chemistry I	4	Chm 232 Organic Chemistry II	4
Free Electives*	9-10	Free Electives*	9-10
Psy 101 General Psychology	3	Psy Elective	3
	16-17		16-17

*Electives include courses to satisfy the broad educational requirements of the Wilkes University Core Curriculum, and the major.

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*	12-13	Free Electives*	12-13
	16-17		16-17

*Electives include courses to satisfy the broad educational requirements of the Wilkes University Core Curriculum, and the major.

Additional elective credits will be selected from the sciences to extend depth education in disciplines such as Biology and Chemistry. **Chemistry 361, Biochemistry,** is strongly recommended by the Joint Wilkes – PCOM Admissions Committee as an elective.

III. Transfer Medical Degree Program

Four years of undergraduate study ordinarily are required to qualify for the bachelor's degree. Wilkes University makes an exception in special circumstances to this requirement for doctoral students in medicine.

These students may, with the approval of the Academic Standards Committee, satisfy the requirements for the bachelor's degree by completing three years of an academic major, at least the last two of which must be at Wilkes, and by requesting credit toward the degree for their first two years of work in professional school. Students in these programs must, however, satisfy the Core Requirements at Wilkes University to be considered for a bachelor's degree from the University.

Such students must also petition the Academic Standards Committee for permission to graduate, submit official transcripts from the professional school, and pay the usual graduation fees. In all cases the **final approval for the granting of the degree rests with the Academic Standards Committee of Wilkes University.**

Preprofessional Programs

Predoctoral Programs in Dentistry, Podiatry, Optometry and Veterinary Medicine

Overview

Wilkes University offers preprofessional programs in Dentistry, Podiatric Medicine, Optometry and Veterinary Medicine.

These programs at Wilkes University offer 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 disciplines as diverse as mathematics, engineering and English and have gained admission to professional school. Professional 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 preprofessional programs in Dentistry, Podiatric Medicine, Optometry and Veterinary Medicine require a basic core in the sciences 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 predoctoral programs follows the semester by semester outline given below. Any predoctoral baccalaureate program of study, however, must include the above basic science prerequisites along with the core education requirements, and other specific requirements of the departmental major.

An important component of the Wilkes predoctoral education is its counseling and advising system. The Wilkes tradition of close student advising permits thorough understanding of the student's aspirations and goals. A faculty advisor is assigned to the student in his or her major field of choice. In addition the student is advised on the particulars of doctoral education by a member of the Preprofessional Programs Advisors Council.

Programs

In addition to the ordinary four-year, preprofessional undergraduate programs, Wilkes University has developed distinctive affiliated undergraduate-professional school programs with the following:

Temple University School of Dentistry
Pennsylvania College of Podiatric Medicine
Pennsylvania College of Optometry

These three dual-degree medical programs require only three (3) years of study at Wilkes University before entering professional school. Decisions on admission to the professional school are made by action of a joint selection committee of Wilkes University Faculty and Professional School Faculty following three years of study at Wilkes University. Students enrolling in the affiliated programs will generally follow a program of study which is shown below.

Affiliated Predoctoral Programs in Dentistry/Optometry/Podiatric Medicine

First Semester	
Bio 121 Principles of Modern Biology I	4
Chm 115 Elements and Compounds	4
Eng 101 Composition I	3
Mth 105 Calculus for Life, Managerial, and Social Sciences I **or**	
Mth 111 Calculus I	4
CST 101 Core Studies I	1
Free Electives	0-2
PE 100 Activity	0
	16-18

Second Semester	
Bio 122 Principles of Modern Biology II	4
Chm 116 The Chemical Reaction	4
Eng 102 Composition II	3
Mth 106 Calculus for Life, Managerial, and Social Sciences II **or**	
Mth 112 Calculus II	4
Free Electives	0-3
PE 100 Activity	0
	15-18

Third Semester	
Chm 231 Organic Chemistry I	4
Psy 101 General Psychology	3
Free Electives	8-11
	15-18

Fourth Semester	
Chm 232 Organic Chemistry II	4
Free Electives	11-14
Health Profession Orientation	0
	15-18

Fifth Semester	
Phy 105 Introductory Physics **or**	
Phy 201 General Physics I	4
Free Electives	12-14
	16-18

Sixth Semester	
Phy 106 Introductory Physics **or**	
Phy 202 General Physics II	4
Free Electives	12-14
	16-18

Total electives available [1, 2] . . . . . .40-56 credits

Following successful completion of the three-year program along with one year of basic sciences education at the professional school, Wilkes University will award the Bachelor of Science degree.

[1]Students in the optometry program must take Mth 150 — statistics.
[2] Must include the core educational requirements, and the major.

Veterinary Medicine

Students who wish to pursue a career in Veterinary Medicine enroll in a curriculum which will allow them to fulfill the basic science requirements for Veterinary school which are listed below:

2 courses in Biology
4 courses in Chemistry
2 courses in Physics
2 courses in Calculus

Many students elect a biology major which would automatically include the above courses. However, students have the option of choosing other majors depending on their interests.

An academic program for a pre-veterinary medicine student would follow a format similar to the following:

First Semester	
Bio 121 Principles of Modern Biology I	4
Chm 115 Elements and Compounds	4
Eng 101 Composition I	3
Mth 105 Calculus for Life, Managerial, and Social Sciences I **or**	
Mth 111 Calculus I	4
CST 101 Core Studies I	1
Free Electives*	0-2
PE 100 Activity	0
	16-18

Second Semester	
Bio 122 Principles of Modern Biology II	4
Chm 116 The Chemical Reaction	4
Eng 102 Composition II	3
Mth 106 Calculus for Life, Managerial, and Social Sciences II **or**	
Mth 112 Calculus II	4
Free Electives*	0-3
PE 100 Activity	0
	15-18

Third Semester	
Chm 231 Organic Chemistry I	4
Psy 101 General Psychology	3
Free Electives*	8-11
	15-18

Fourth Semester	
Chm 232 Organic Chemistry II	4
Free Electives*	11-14
Predoctoral Orientation	0
	15-18

Fifth Semester	
Phy 105 Introductory Physics **or**	
Phy 201 General Physics I	4
Free Electives*	12-14
	16-18

Sixth Semester	
Phy 106 Introductory Physics **or**	
Phy 202 General Physics II	4
Free Electives*	12-14
	16-18

Seventh Semester	
Major Requirements and Free Electives*	15
	15

Eighth Semester	
Major Requirements and Free Electives*	15
	15

*Must include the core educational requirements.

Transfer Doctoral Degree Program

Four years of undergraduate study ordinarily are required to qualify for the bachelor's degree. Wilkes University makes an exception in special circumstances to this requirement for doctoral students in Dentistry, Podiatric Medicine, Optometry and Veterinary Medicine.

These students may, with the approval of the Academic Standards Committee, satisfy the requirements for the bachelor's degree by completing three years of an academic major, at least the last two of which must be at Wilkes, and by requesting credit toward the degree for their first two years of work in professional school. Students in these programs must, however, satisfy the Core Requirements at Wilkes University to be considered for a bachelor's degree from the University.

Such students must also petition the Academic Standards Committee for permission to graduate, submit official transcripts from the professional school, and pay the usual graduation fees. In all cases the **final approval for the granting of the degree rests with the Academic Standards Committee of Wilkes University.**

Allied Health and Pre-Pharmacy Programs

Overview

Temple University College of Allied Health Professions and Wilkes University 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 areas:

Health Records Administration
Occupational Therapy
Physical Therapy

Successful completion of the selected programs, except physical therapy, at the College of Allied Health Professions will lead to the Bachelor of Science degree from Temple University.

The Allied Health Programs, except physical therapy, require four years of study. The first two years of study or the equivalent are done at Wilkes and the final two years at Temple University College of Allied Health Professions. Academic preparation at Wilkes University as well as admission requirements at Temple will differ somewhat for each program.

A brief description of each program and the prerequisite courses which are required for admission to Temple in each program follow:

Health Records Administration

Health Records Administration is concerned with the development, implementation, maintenance, and administration of systems of storage, retrieval, and release of patient health information.

As a vital member of the health care team frequently unseen by the patient or the family, the Health Records Administrator works closely with all other health professionals to gather and make available the information needed by them to provide high-quality patient care. As administrators they are responsible for the development and maintenance of multifaceted medical records system that is capable of providing the data needed:

- by the patient for present and future care and for verification of insurance and other legal claims;
- by the health care professionals as a tool for evaluation of their own performance and as a medium of communication among them;
- by the administration of a facility for analysis and planning;
- by the community for public health;
- by those involved in research and education.

As in all allied health fields, there is an acute shortage of qualified health records administrators to fill an increasing number of positions that are available in hospitals, outpatient facilities, research centers, industry, and health agencies throughout the country.

Program

The prerequisite courses which are required for admission to Temple in Health Records Administration are listed below.

Temple University Programs	Credits	Wilkes University Equivalents
Humanities	6-8	Eng 101-102 English Composition
Social Science	3-4	Soc 101 Sociology
Psychology	3-4	Psy 232 Human Behavior
Science	3-4	Psy 221 Developmental Psychology
	8-9	Bio 121-122 General Biology
	6-8	Bio 115-116 Anatomy & Physiology (with lab)
		OR
	3-4	Bio 222 Comparative Anatomy & a Physiology (with lab) Elective
		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

Occupational Therapy

The services behind the title Occupational Therapy apply to members of the community who encounter difficulties with tasks of living. The difficulties may be from developmental deficits, the aging process, physical illness or injury, economic stress, cultural differences, or psychological problems which present barriers for an individual to function in life.

The Occupational Therapist bases service on a rapidly growing field of knowledge to enhance the individual's abilities to function and prevent areas of dysfunction. The therapist uses selected, goal-directed activities to encourage learning, re-education, growth and strength, and to promote general health.

Occupational Therapists provide services along with other health professionals in a number of different settings ranging from hospitals, clinics, schools, and workshops for homes and community service agencies, to reach a wide population of all ages.

Program

The prerequisite courses which are required for admission to Temple in Occupational Therapy are listed below.

Temple University Programs	Credits	Wilkes University Equivalents
Humanities	6-8	Eng 101-102 English Composition
Social Science	3-4	Soc 101 Sociology
Psychology	3-4	Psy 232 Human Behavior
Science	8-9	Bio 115-116 Human Anatomy & Physiology
	4	Chm 115 Elements and Compounds
Social Science	3-4	Psy 221 Developmental Psychology

Physical Therapy

Physical Therapy is a profession concerned with restoration of physical function and the prevention of disability following disease, injury, or loss of body part. The goal of Physical Therapy is to help the patient reach maximum potential and to assume a place in society while learning to live within the limits of his/her capabilities. Various exercises and physical agents according to biomechanical and physiological principles are used to achieve this goal.

Physical Therapists are qualified to utilize such physical agents as therapeutic health, light, electricity, water, exercise, or massage in treating patients. Treatment may consist of teaching the patient an exercise regime to increase muscle power or improve coordination, or teaching the patient to walk with an artificial limb, brace, or other ambulatory aids. Appropriate psychological and sociological principles are applied in motivating and instructing the patient, his/her family, and others. Physical Therapists may

delegate selected forms of treatment to supportive personnel with assumption of the responsibilities for the care of the patient and the continuing supervision of the supportive personnel.

Career opportunities exist for physical therapists in hospitals, rehabilitation centers, pediatric facilities, private practice, research, industry, sports medicine, school systems, nursing homes and other health care settings.

The affiliated physical therapy program requires three years of study at Wilkes University and three years of study at Temple University. Students who enter the professional three years of study at Temple will be granted the Bachelor of Arts degree with a major in biology or psychology by Wilkes University following successful completion of their first year at Temple providing that they have met the Core Requirements. They will be awarded the Master of Physical Therapy degree following completion of three years at Temple.

The recommended programs at Wilkes in biology and psychology are as follows.

Recommended Course Sequence for a Major in Biology

First Semester		Second Semester	
Bio 121 Principles of Modern Biology	4	Bio 122 Principles of Modern Biology II	4
Chm 115 Elements and Compounds	4	Chm 116 The Chemical Reaction	4
Eng 101 Composition I	3	Eng 102 Composition II	3
Mth 105 Calculus for Life, Managerial, and Social Sciences I **or**		Mth 106 Calculus for Life, Managerial, and Social Sciences II **or**	
Mth 111 Calculus I	4	Mth 112 Calculus II	4
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		
	16		15
Third Semester		**Fourth Semester**	
Bio 221 Cellular and Molecular Biology	4	Bio 222 Comparative Anatomy	4
Chm 231 Organic Chemistry I	4	Chm 232 Organic Chemistry II	4
Core Requirements	8-9	Core Requirements	8-9
	16-17		16-17
Fifth Semester		**Sixth Semester**	
Bio 397 Seminar*	1	Bio 397 Semester*	1
Bio Elective/Research	3	Bio Elective/Research	3
Phy 105 Introductory Physics **or**		Phy 106 Introductory Physics **or**	
Phy 201 General Physics I	4	Phy 202 General Physics II	4
Mth 150 Elementary Statistics	3	Core and Major Requirements	10
Core and Major Requirements	7		17-18
	17-18		

*Only one semester of Bio 397 is required but it must be taken in either the fifth or sixth semester.

Transfer Credits from Temple University — 30.

Recommended Course Sequence for a Major in Psychology

First Semester		Second Semester	
Psy 101 General Psychology	3	Psy Elective*	3
Bio 121 Principles of Modern Biology I	4	Bio 122 Principles of Modern Biology II	4
Chm 115 Elements and Compounds	4	Chm 116 The Chemical Reaction	4
Eng 101 Composition I	3	Eng 102 Composition II	3
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		
	15		14

Third Semester		Fourth Semester	
Psy (Q.M.) 215 Research Design and Analysis	3	Psy Elective*	3
Core Requirements	9	Core Requirements	12
Mth 105 Calculus for Life, Managerial, and Social Sciences I	4	PE 100 Activity	0
PE 100 Activity	0		15
	16		

Fifth Semester		Sixth Semester	
Phy 105 Introductory Physics	4	Phy 106 Introductory Physics	4
Core Requirement	3	Core Requirement	3
Psy 211 Experimental Psychology	3	Psy 212 Experimental Psychology	3
Psy Electives*	6	Psy Electives*	6
	16		16

Required Psychology Electives*	Psychology 213	Physiological
	Psychology 214	Sensory and Perceptual Processes
	Psychology 221	Developmental
	Psychology 245	Clinical
	Psychology 398	Neuro
	Psychology 398	Internship

Transfer Credits from Temple University — 30.

Pre-Pharmacy Program

Wilkes University 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 and contain coursework listed below.

Two Years at Wilkes University

First Semester		Second Semester	
Bio 121 Principles of Modern Biology I	4	Bio 122 Principles of Modern Biology II	4
Chm 115 Elements and Compounds	4	Chm 115 The Chemical Reaction	4
Eng 101 Composition I	3	Eng 102 Composition II	3
Mth 105 Calculus for Life, Managerial, and Social Sciences I **or**		Mth 106 Calculus for Life, Managerial, and Social Sciences II **or**	
Mth 111 Calculus I	4	Mth 112 Calculus II	4
CST 101 Core Studies I	1	Free Electives	0-3
Free Electives	0-2		
	16-18		15-18

Third Semester		Fourth Semester	
Chm 231 Organic Chemistry I	4	Chm 232 Organic Chemistry II	4
Phy 105 Introductory Physics or		Phy 106 Introductory Physics or	
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 or to any other pharmacy school. All prerequisite courses listed above, e.g. Bio 121, Chm 115, etc., must be completed with a grade of at least 2.0.

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 University. In addition, credit may be assigned for appropriate off-campus study, work, 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 121 credits. Although there are no specific course requirements, the spirit of the Wilkes University core curriculum is to be respected.

MATHEMATICS

Professor Wong, Chairperson; Professors Emeritus Richards, Salsburg; Professors Koch, Merrill, Sours, Tillman; Associate Professors Berard, DeCosmo, Schwartz; Assistant Professors Belanger, Kugendran, Rosenbaum, Snyder, Wang.

Total minimum number of credits required for a major in Mathematics leading to the B.A. degree — 127.

Total minimum number of credits required for a major in Mathematics leading to the B.S. degree — 129.

Total minimum number of credits required for a minor — 22 or 23.

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 224), and a B.S. program in computer information systems (see page 221).

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, operations research 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 abstract algebra, modern 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 engineering, natural and physical sciences. Both B.A. and B.S. programs are available in all three tracks. Required courses for a mathematics major are indicated in the curriculum outlines recommended on pages 280-284, which are based on an extensive prerequisite structure.

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 chairperson.

Minor in Mathematics

Required Courses:	**credit hours**
Mth 111-112; 202; 211 or 212; 214	19
Electives:	
One of Mth 311 or 314 or 331	3-4
Minimum Total Required	22-23

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 or CS 125; Mth 351-352; and Mth 354	20
Electives:	
One of the following: Mth/CS 262; CS 321; or a Topics course in statistics	3
Minimum Total Required	23

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 59-62, except that science electives must be in accordance with the Department's requirements specified on page 283. While all of the courses listed are required, sequencing may vary, provided that the prerequisites are met.

First Semester

	B.A.	B.S.
Mth 111 Calculus I	4	4
Eng 101 Composition I	3	3
CS 125 Computer Science I	3	3
Core Requirements	6	6
CST 101 Core Studies I	1	1
PE 100 Activity	0	0
	17	17

Second Semester

	B.A.	B.S.
Mth 112 Calculus II	4	4
Eng 102 Composition II	3	3
Core Requirements	6	6
Free Elective	3	3
PE 100 Activity	0	0
	16	16

Third Semester

	B.A.	B.S.
Mth 202 Set Theory and Logic	4	4
Mth 211 Intro. to Ordinary Differential Equations	4	4
Phy 201 (B.S.) or Science Elective[1]	—	4
Science Elective[1]	3	—
Core Requirements	6	6
	17	18

Fourth Semester

	B.A.	B.S.
Mth 212 Multivariable Calculus	4	4
Mth 214 Linear Algebra	3	3
Science Elective[1]	3	4
Core Requirements	6	6
	16	17

Fifth Semester

	B.A.	B.S.
Mth 331[3] Intro. to Abstract Algebra I	4	4
Mth 351 Probability and Mathematical Statistics I	3	3
Science Elective[1]	3	3
Core Requirement	3	3
Free Elective	3	3
	16	16

Sixth Semester

	B.A.	B.S.
Mth/CS Elective[2]	3	6
Free Electives	12	9
	15	15

Seventh Semester

	B.A.	B.S.
Mth 311[3] Functions of a Real Variable	4	4
Mth/CS Elective[2]	3	3
Free Electives	9	9
	16	16

Eighth Semester

	B.A.	B.S.
Mth/CS Elective[2]	3	3
Free Electives	11	11
	14	14

[1] See page 283 for the Department's requirements regarding science electives.
[2] See page 283 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.

Recommended Course Sequence for Teacher Certification Mathematics Track

NOTE: All core requirements should be chosen to satisfy the General Core Requirements listed on pages 59-62, except that science electives must be in accordance with the Department's requirements specified on page 283. While all of the courses listed are required, sequencing may vary, provided that the prerequisites are met.

First Semester

	B.A.	B.S.
Mth 111 Calculus I	4	4
Eng 101 Composition I	3	3
CS 125 Computer Science I	3	3
Core Requirements	6	6
CST 101 Core Studies I	1	1
PE 100 Activity	0	0
	17	17

Second Semester

	B.A.	B.S.
Mth 112 Calculus II	4	4
Eng 102 Composition II	3	3
Psy 101 General Psychology	3	3
Core Requirement	3	3
Free Elective	3	3
PE 100 Activity	0	0
	16	16

Third Semester

	B.A.	B.S.
Mth 202 Set Theory and Logic	4	4
Ed 101 Practicum in Education	1	1
Ed 201 Intro. to Education	3	3
Phy 201 General Physics I	—	4
or Science Elective[1]	3	—
Core Requirements	6	6
	17	18

Fourth Semester

	B.A.	B.S.
Mth 212 Multivariable Calculus	4	4
Mth 214 Linear Algebra	3	3
Ed 202 Educational Psychology	3	3
Science Elective[1]	3	4
Core Requirement	3	3
	16	17

Fifth Semester

	B.A.	B.S.
Mth 331[3] Intro. to Abstract Algebra I	4	4
Mth 343 Intro. to Geometry*	3	3
Science Elective[1]	3	3
Core Requirement	3	3
	13	13

Sixth Semester

	B.A.	B.S.
Mth/CS Electives[2]	3	6
Ed 102 Practicum in Education	1	1
Core Requirement	3	3
Free Electives	9	6
	16	16

Seventh Semester

	B.A.	B.S.
Mth 203 The Teaching of Mathematics in Secondary Schools*	3	3
Mth 311[3] Functions of a Real Variable	4	4
Mth 351 Probability and Mathematical Statistics I	3	3
Mth/CS Elective[2]	—	3
Free Electives	4	1
	14	14

Eighth Semester

	B.A.	B.S.
Ed 371 The Individual in the Classroom	3	3
Ed 380 Professional Semester in Education	15	15
	18	18

1 See page 283 for the Department's requirements regarding science electives.
2 See page 283 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.
*Mth 203 and Mth 343 are offered in alternate years; one of them should be taken in the junior year, the other in the senior year.

Science Electives for Mathematics Majors:

B.A. candidates: Three courses in Biology, Chemistry, Earth and Environmental Sciences or Physics chosen from among those listed on page 62 under the "Scientific World" distribution area. Selections must include two different fields and one course with a laboratory component.

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.

*Mth 203, 232, and 243 are **not** acceptable in this requirement.

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	34	34
Mth/CS Electives	9	12
CS 125	3	3
Phy 201	—	4
Science Electives	9	7
Eng 101-102	6	6
Core Requirements	28	28
Free Electives	38	35
Total	127	129

Teacher Certification Mathematics Track	B.A.	B.S.
Mth 111, 112, 202, 203, 212, 214, 311, 331, 343, and 351	36	36
Mth/CS Electives	3	9
CS 125	3	3
Phy 201	—	4
Science Electives	9	7
Eng 101-102	6	6
Ed 101, 102, 201, 202, 371, and 380	26	26
Proficiency Examination	—	—
Psy 101	3	3
Core Requirements	25	25
Free Electives	16	10
Total	127	129

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.

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 calculus. 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, mathematics of finance, consumer mathematics, 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.

MTH 105. CALCULUS FOR LIFE, MANAGERIAL, AND SOCIAL SCIENCES I **Four credits**

Intended primarily for students of social and natural sciences. Topics include: review of algebra, limit, differentiation, integration, sequences and series, partial differentiation, differential equations, and probability. Not open to students with credits in Mth 111 or 112.

Prerequisites: 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.

Prerequisites: 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 **Three credits**

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, spring, and summer.

MTH 202. SET THEORY AND LOGIC **Four credits**

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 instructor.

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 in the fall semester of odd years.

MTH 211. INTRODUCTION TO ORDINARY DIFFERENTIAL EQUATIONS **Four credits**

First-order and linear higher-order differential equations; matrices, determinants, and systems of differential equations; numerical methods of solution; the Laplace transform.

Prerequisite: Mth 112.

Offered every fall and summer.

MTH 212. MULTIVARIABLE CALCULUS **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.

Offered every spring and summer.

MTH 214. LINEAR ALGEBRA **Three credits**

An axiomatic approach to vector spaces, linear transformations, systems of linear equations, eigenvalues and eigenvectors.

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**

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 **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 CS 260)

Prerequisites: Mth 106, CS 123 or CS 125.

Offered in the fall semester of odd years.

MTH 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 CS 262)

Prerequisites: CS 123 or CS 125; Mth 105-106 or Mth 111-112; and some elementary knowledge of matrices.

Offered every spring.

MTH 311. FUNCTIONS OF A REAL VARIABLE **Four credits**

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.

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 rigorous 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 **Three credits**

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 **Three credits**

Random variables, probability distributions, expectation and limit theorems, confidence intervals.

Prerequisite: Mth 106 or 112 or consent of instructor.

Offered every fall.

MTH 352. PROBABILITY AND MATHEMATICAL STATISTICS II **Three credits**

Hypothesis testing, non-parametric methods, multivariate distributions, introduction to linear models.

Prerequisite: Mth 351 or consent of instructor.

Offered in the spring semester of odd years.

MTH 354. STATISTICAL METHODOLOGY **Three credits**

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 the log-linear model.

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 **Three credits**

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.

MTH 362. INTRODUCTION TO APPLIED MATHEMATICS II — **Three credits**

A continuation of Mth 361.

Prerequisite: Mth 361 or consent of instructor.

Offered every spring.

MTH 364. NUMERICAL ANALYSIS — **Three credits**

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).

Prerequisites: Mth 211 and CS 123 or CS 125 or consent of instructor.

Offered in the spring semester of odd years.

MTH 395-396. INDEPENDENT STUDY IN MATHEMATICS — **Variable credit**

Individual study in a chosen area of mathematics under the supervision of a faculty member. May be repeated for credit.

Prerequisite: Approval of department chairperson.

MTH 397. SEMINAR — **One to three credits**

Presentations and discussions of selected topics.

Prerequisite: Approval of department chairperson.

MTH 399. COOPERATIVE EDUCATION — **One to six credits**

Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)

Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

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.

Prerequisites: 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**

Advanced 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.

Prerequisites: Senior standing and approval of department chairperson.

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.

MEDICAL TECHNOLOGY

Professor Turoczi; Assistant Professor Pidcock; Adjunct Faculty Brian D. Spezialetti (Program Director, Medical Technology Program, Robert Packer Hospital), Madeline Bonadies (Educational Coordinator, School of Medical Technology, The Somerset Medical Center), Mary Gene Butler (Educational Coordinator, School of Medical Technology Consortium), Alfred S. Conston (Medical Director, School of Medical Technology, The Somerset Medical Center), Deborah L. Johnson (Educational Coordinator, School of Medical Technology, Allentown Hospital Association), C. Warren Koehl (Medical Director, School of Medical Technology, Wilkes-Barre General Hospital), Alexander Nedwick (Medical Director, School of Medical Technology, Allentown Hospital Association), Helen M. Ruane (Educational Coordinator, School of Medical Technology, Wilkes-Barre General Hospital), Donald R. Weaver (Medical Director, Medical Technology Program, Robert Packer Hospital).

Total minimum number of credits required for a major in Medical Technology leading to the 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 University 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 University 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 University 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 chairperson and of the Academic Standards Committee.

Recommended Course Sequence for a Major in Medical Technology

First Semester		Second Semester	
Bio 121 Principles of Modern Biology I	4	Bio 122 Principles of Modern Biology II	4
Chm 115 Elements and Compounds	4	Chm 116 The Chemical Reaction	4
Eng 101 Composition I	3	Eng 102 Composition II	3
Mth 105 or 111 Calculus I	4	Mth 106 or 112 Calculus II	4
CST 101 Core Studies I	1	PE 100 Activity	0
PE 100 Activity	0		
	16		15

Third Semester	
Bio 221 Cellular and Molecular Biology	4
Chm 231 Organic Chemistry I	4
Humanities Core Requirements	6
Social Science Core Requirement	3
	17

Fourth Semester	
Bio 222 Comparative Anatomy	4
Chm 232 Organic Chemistry II	4
Humanities Core Requirements	6
Social Science Core Requirement	3
	17

Fifth Semester	
Biology Elective	3
Bio 397 Seminar*	1
Chm 241 Inorganic Quantitative Analysis	4
Computer Science Elective	3
Phy 105 Introductory Physics I	4
Social Science or Humanities Core Requirement	3
	17-18

Sixth Semester	
Bio 303 Bacteriology	4
Bio 341 Immunology and Immunochemistry	4
Bio 397 Seminar*	1
Mth 150 Elementary Statistics	3
Phy 106 Introductory Physics II	4
Social Science or Humanities Core Requirement	3
	18-19

Seventh Semester **Eighth Semester**

MEDICAL TECHNOLOGY PROFESSIONAL STUDY YEAR

The 30 credits supplied by the twelve months' clinical training are divided into the following courses:

Bio 371 Clinical Microbiology	7
Bio 372 Clinical Chemistry	8
Bio 373 Clinical Hematology/Coagulation	5
Bio 374 Clinical Immunohematology	4
Bio 375 Clinical Immunology/Serology	3
Bio 376 Clinical Seminar	3
	30

*Only one semester of Bio 397 is required but it must be taken in either the fifth or sixth semester.

MILITARY SCIENCE (Army ROTC)

Lieutenant Colonel Casey, Chairperson.

The primary objective of the ROTC program is to develop leadership capabilities and to train future officers for both the active and reserve components of the United States Army.

Military Science instruction for Wilkes University students is offered on campus at King's College or the University of Scranton pursuant to an agreement with the Military Science Department at the University of Scranton. A two-year and four-year program are offered, both of which lead to a commission as an officer in the United States Army. To obtain this commission, qualified male and female students must successfully pass an aptitude test, a physical examination, and complete either the two- or four-year program of approved Military Science courses. While enrolled in the Advanced Courses (Military Science III and IV), the student will receive $100 per month subsistence allowance. Uniforms, equipment, and textbooks required for Army ROTC classes will be supplied by the Army. Students may compete for Army ROTC scholarships while in high school (4-year awards), or during college (3- and 2-year awards). Scholarships pay tuition (80% or $7,000 per year, whichever is more), textbooks, lab and other academic fees, plus an allowance of up to $1,000 each school year.

Students qualify for advanced ROTC courses (2-year program) in three ways:

(1) **On Campus Courses** — most students take introductory military science courses on campus during their freshman and sophomore years. These courses allow them to learn about the Army and the opportunities and responsibilities of an officer without incurring an obligation. This "basic" program generally involves one course per school term, although students may arrange to compress more than one of the required courses into a single term.

(2) **Summer Programs** — students may also qualify through a paid, six-week, no obligation summer "Basic Camp" which provides intensive military training at Fort Knox, Kentucky. Students may also compress all freshmen and sophomore military science courses during one on-campus summer session.

(3) **Advanced Placement** — students with prior military service, members of the United States Army Reserve or National Guard, or JROTC members may qualify for advanced placement into the advanced Army ROTC courses.

Two-Year Program

Available to qualified students having a minimum of two academic years remaining to degree completion, and meeting criteria set forth in paragraphs

(2) or (3) above. Application for this program must be made prior to the end of the Spring Semester of the sophomore year for those not enrolled in previous Military Science instruction. Also available for accepted graduate students.

Four-Year Program

Consists of all eight Military Science courses (commencing no later than the sophomore year). Enrollment in the first four courses of Military Science (MS I & II) is accomplished in the same manner as any other college course and carries no military obligation. Application to enroll in the Advanced Military Science courses (MS III & IV) must be made while enrolled in Military Science 22.

While enrolled in the Advanced Course, each student is required to successfully complete a six-week paid Advanced Camp at Fort Bragg, North Carolina, normally after completing Military Science 102. Transportation, food, lodging, and medical and dental care, are provided by the Army.

Military Science Courses

MS 11-12. MILITARY SCIENCE I — **Two credits**
Military history designed to provide a fundamental understanding of the Army's organization, structure, and components, and to analyze major events and influences of Army History. Examination of the formulation and implementation of national security policy will be made. The student will also gain an acquaintance with the evolution of warfare, military theory, and the military profession, with particular emphasis on leadership. One hour for two semesters.

MS 21-22. MILITARY SCIENCE II — **Four credits**
Introduction to land navigation, including use of the compass and topographic maps. First aid, to include CPR (Certification available dependent upon student interest). A survey of leadership theory to include leadership models and group dynamics is held. Two hours for two semesters.

MS 101. MILITARY SCIENCE III — **Two credits**
Military skills and professional knowledge subjects designed to instruct the cadet in the principles and techniques of applied leadership, advanced land navigation, and tactics. An introduction to the international agreements governing armed forces, operational planning, and the functions of command and staff is given. Two hours.

Prerequisite: MS 21-22, or equivalent.

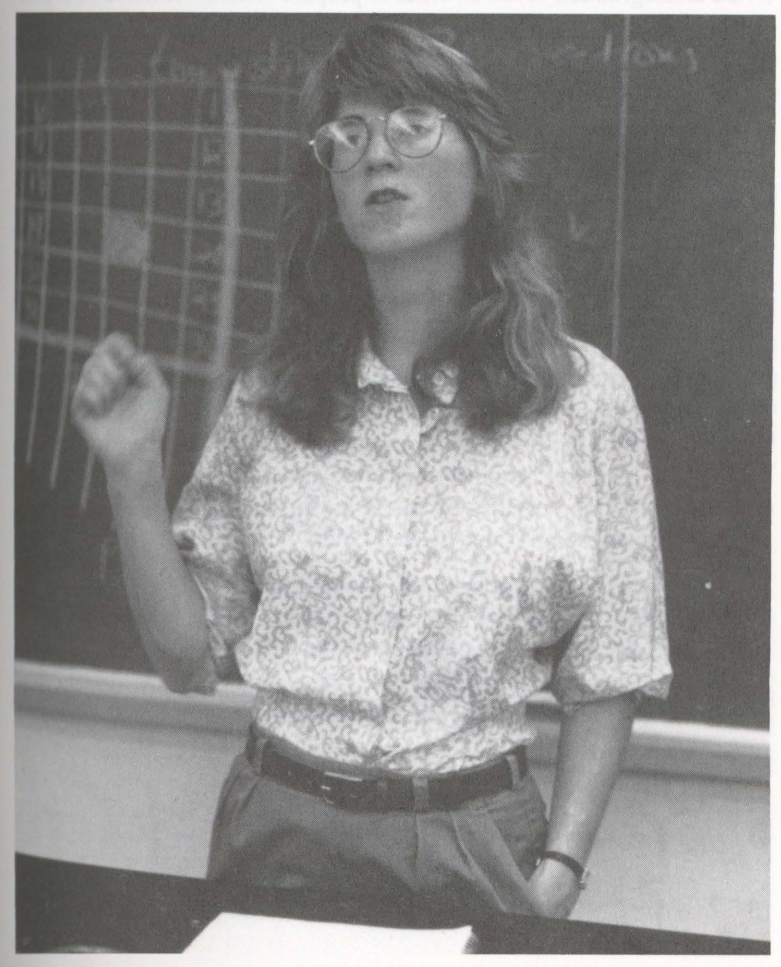
MS 102. MILITARY SCIENCE III — **One credit**
Instruction designed to prepare the student for the ROTC Advanced Camp. Emphasis on applied small unit leadership, physical conditioning, practical training on military equipment, tactics and unit drill. Two hours.

MS 121. MILITARY SCIENCE IV — **Two credits**
An examination of mid-level management considerations in the Army. The course addresses the Army's personnel, training and logistics management system. In addition, the cadet is given an overview of the American Military Justice system, the Law of War, and both legal and practical considerations in connection with apprehension and search of personnel, seizure of contraband, and individual rights. Two hours.

MS 122. MILITARY SCIENCE IV — **One credit**
The Army Officer in Contemporary American Society. An introduction to professionalism and military ethics. Provides the cadet with an introduction to the profession, its characteristics, roles and responsibilities; a basic understanding of the professional soldier's responsibilities to the nation and the armed forces; an understanding of the needs for ethical conduct, sensitivity to ethical issues, and improved ethical decision-making skills. Additionally, the course offers outside presentations in the banking and insurance fields. Moreover, a review of logistics, counseling, and written and oral communication is given. Two hours.

MS 130. MILITARY SCIENCE LAB — **No credit**
Required of all Military Science students each semester. Stresses practical application of classroom theory and Army related subjects such as leadership, drill and ceremonies, weapons training, land navigation, first aid, mountaineering, and tactics. Two hours.

NOTE: Students desiring to pursue Military Science studies through to a commission are also required to complete additional courses in the Humanities and Computer Science. See the Professor of Military Science for more information.



PHYSICS

Associate Professor Maxwell, Chairperson; Professors Emeriti Bellas, Donahoe; Professors Hostler, Orehotsky, Placek; Associate Professor Emeritus Bailey; Assistant Professors Bibby, Kucirka, Loncoski.

Total minimum number of credits required for a major in Physics leading to the B.A. degree — 128.

Total minimum number of credits required for a major in Physics leading to the B.S. degree — 130.

Total minimum number of credits required for a major in Medical & Health Physics leading to the B.S. degree — 132.

Total minimum number of credits required for a minor — 18.

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.

Recommended Course Sequence for a B.A. Degree in Physics

First Semester	
Eng 101 Composition I	3
Mth 111 Calculus I	4
or 105 Intro. to Calculus I	
Phy 121 Technological Survival	3
CST 101 Core Studies I	1
Core Requirement	3
Free Elective*	3
PE 100 Activity	0
	17

Second Semester	
Eng 102 Composition II	3
Mth 112 Calculus II	4
or 106 Intro. to Calculus II	
Computer Science Elective	3
Core Requirement	3
Free Elective*	3
PE 100 Activity	0
	16

Third Semester	
Chm 115 Elements & Compounds	4
Mth 211 Differential Equations	4
or Science Elective	
Phy 201 General Physics I	4
or 105 Introductory Physics I	
Core Requirement	3
	15

Fourth Semester	
Chm 116 Chemical Reaction	4
Mth 212 Multivariable Calculus	4
or Science Elective	
Phy 202 General Physics II	4
or 106 Introductory Physics II	
Core Requirement	3
	15

Fifth Semester	
Phy 203 General Physics III	3
or Science Elective	
Phy 221 Elect. Instruments	3
Phy 397 Seminar	0
Core Requirements	6
Free Electives*	4-6
	16-18

Sixth Semester	
Phy 397 Seminar	0
Statistics Elective	3
Core Requirements	6
Free Electives*	6-8
	15-17

Seventh Semester	
Phy 391 Senior Projects I	1
Phy 397 Seminar	0
Free Electives*	15
	16

Eighth Semester	
Phy 392 Senior Projects II	2
Phy 397 Seminar	1
Core Requirement	3
Free Electives*	12
	18

Core Distribution Requirement — 15 credits from Culture and Value, 9 credits from Society and Human Behavior, and 3 credits from Creative and Artistic Expression. It is strongly recommended that Soc 391 & 392 be taken along with Phy 391 & 392.

Free Electives — A minimum of 12 credits must be chosen from physics courses numbered 200 or above.

Science Electives — May be chosen from any mathematics, science, or engineering courses numbered 200 or above.

Recommended Course Sequence for a B.S. Degree in Physics

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Mth 111 Calculus I	4	Mth 112 Calculus II	4
Phy 121 Technological Survival	3	Phy 202 General Physics II	4
Phy 201 General Physics I	4	Computer Science Elective	3
CST 101 Core Studies I	1	Core Requirement	3
PE 100 Activity	0	PE 100 Activity	0
	15		17
Third Semester		**Fourth Semester**	
Chm 115 Elements & Compounds	4	Chm 116 Chemical Reaction	4
Mth 211 Differential Equations	4	Mth 212 Multivariable Calculus	4
Phy 221 Elect. Instrumentation	3	Phy 336 Optics	3
Core Requirement	3	Phy 340 Thermodynamics	3
Free Elective	3	or 310 Mechanics	
		Core Requirement	3
	17		17
Fifth Semester		**Sixth Semester**	
Phy 203 General Physics III	3	Phy 302 Math. in Phys. & Sciences	3
Phy 301 Math. in Phys. & Sciences	3	Phy 310 Mechanics	3
Phy 331 E & M I	3	or 340 Thermodynamics	
Phy 333 E & M Lab I	1	Phy 332 E & M II	3
Phy 397 Seminar	0	Phy 334 E & M Lab II	1
Core Requirements	6	Phy 380 Nuclear Physics	3
		or 361 Atomic Physics	
	16	Phy 397 Seminar	0
		Core Requirement	3
			16
Seventh Semester		**Eighth Semester**	
Phy 351 Quantum Mechanics	3	Phy 361 Atomic Physics	3
Phy 391 Senior Projects I	1	or 380 Nuclear Physics	
Phy 393 Advanced Physics Lab I	2	Phy 392 Senior Projects II	2
Phy 397 Seminar	0	Phy 394 Advanced Physics Lab II	2
Core Requirement	3	Phy 397 Seminar	1
Free Elective	3	Core Requirements	6
Science Electives	3-6	Science Elective	4
	16-18		18

Core Distribution Requirement — 15 credits from Culture and Value, 9 credits from Society and Human Behavior, and 3 credits from Creative and Artistic Expression. It is strongly recommended that Soc 391 & 392 be taken along with Phy 391 & 392.

Science Electives — May be chosen from any mathematics, science, or engineering courses numbered 200 or above. Students contemplating graduate studies should choose 6 of the credits in advanced mathematics.

Recommended Course Sequence for a B.S. Degree in Medical and Health Physics

First Semester		Second Semester	
Eng 101 Composition I	3	Eng 102 Composition II	3
Mth 111 Calculus I	4	Mth 112 Calculus II	4
Phy 121 Technological Survival	3	Phy 202 General Physics II	4
Phy 201 General Physics I	4	Computer Science Elective	3
CST 101 Core Studies I	1	Core Requirement	3
PE 100 Activity	0	PE 100 Activity	0
	15		17
Third Semester		**Fourth Semester**	
Chm 115 Elements & Compounds	4	Chm 116 Chemical Reaction	4
Mth 211 Differential Equations	4	Egr 250 Biomedical Engineering	3
Phy 221 Elect. Instrumentation	3	Phy 336 Optics	3
Phy 203 General Physics III	3	Core Requirement	3
Core Requirement	3	Free Elective	3
	17		16
Fifth Semester		**Sixth Semester**	
Bio 115 Human Anat. & Phys. I	4	Bio 116 Human Anat. & Phys. II	4
Chm 231 Organic Chemistry I	4	Chm 232 Organic Chemistry II	4
Phy 323 X-Ray Diffraction	4	Phy 397 Seminar	0
or Science Elective		Core Requirement	3
Phy 397 Seminar	0	Free Elective	6
Core Requirements	6		
	18		17
Seventh Semester		**Eighth Semester**	
Phy 323 X-Ray Diffraction	3	Phy 326 Med. & Health Phys. II	3
or Science Elective		Phy 390 Practicum	3
Phy 325 Med. & Health Phys. I	3	Phy 392 Senior Projects II	2
Phy 390 Practicum	3	Phy 394 Advanced Physics Lab II	2
Phy 391 Senior Projects I	1	Phy 397 Seminar	1
Phy 393 Advanced Physics Lab I	2	Core Requirements	7
Phy 397 Seminar	0		18
Core Requirement	3		
	15		

Core Distribution Requirement — 15 credits from Culture and Value, 9 credits from Society and Human Behavior, and 3 credits from Creative and Artistic Expression. It is strongly recommended that Soc 391 & 392 be taken along with Phy 391 & 392.

Science Electives — May be chosen from any science or engineering courses numbered 200 or above.

Practicum — May be taken during the previous summer.

PHY 101. GALAXIES TO ATOMS **Three credits**

Traces the historical and philosophical development of the fundamental concepts of physics and the physical sciences. It begins with the ancient Greek view of the cosmos and how these ideas evolved into the mechanical view of the universe made famous by scientists like Galileo and Newton. The course also considers the concepts of modern atomic and nuclear physics and relativity and how these ideas have evolved into our present view of the physical world. Class meets three hours per week: two hours of lecture and one hour of laboratory. Fee: $10.

Prerequisite: No previous background in science or college-level mathematics is required.

PHY 102. THE FIFTH DIMENSION OF PHYSICS: SOCIETY **Three credits**

Considers the great discoveries of physics and its applications to technology from Newton to Einstein and how these discoveries interface with broader social issues. Science and technology have been looked upon as the cause of many of our present problems such as air pollution and nuclear waste; simultaneously, society looks to science and technology for the solution to these problems. The course will consider these interactions as they relate to present problems of society. Class meets three hours a week: two hours of lecture and one hour of laboratory/discussion. Fee: $10.

Prerequisite: No previous background in science or college-level mathematics is required.

PHY 105-106. INTRODUCTORY PHYSICS **Four credits each**

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, modern concepts. Demonstration-lecture two hours a week, recitation one hour a week, and one laboratory three hours a week. Fee: $45 per semester.

PHY 121. TECHNOLOGICAL SURVIVAL **Three credits**

An introduction to the techniques of analysis and problem solving in engineering and the sciences. Also a presentation and discussion of scientific and technical world views. Emphasis on visualization with symbolic, verbal, and written communication. Introduction to selected mathematical topics including vectors and matrices. Modeling, examples of physical law, engineering design, and problem solving using computers. Selected current topics with technical merit or likely impact on the future, and a cooperative design project. Three hours lecture/recitation per week.

Prerequisite: Familiarity with Algebra and Geometry.

PHY 201. GENERAL PHYSICS I **Four credits**

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: $45.

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: $45.

Prerequisite: Phy 105 or 201.

Corequisite: Mth 112.

PHY 203. GENERAL PHYSICS III **Three credits**

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)

Prerequisites: Phy 201, 202.

PHY 211. STATICS & DYNAMICS **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 ME 231)

Prerequisites: Phy 105 or 201, Mth 112.

PHY 213. FLUID MECHANICS **Three credits**

Thermodynamics and dynamic principles applied to fluid behavior, ideal, viscous, and compressible fluids under internal and external flow conditions. (same as ME 233)

Prerequisite: Phy 211/ME 231.

PHY 221. ELECTRONIC INSTRUMENTATION **Three credits**

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: $40.

Prerequisite: Phy 106 or 202 or junior standing in the sciences.

PHY 225. 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: $45. (same as EES 251)

PHY 228. PRINCIPLES OF ASTRONOMY **Four credits**

Topics include orbital mechanics, results of planetary probes, spectra and stellar evolution, and cosmology. Three hours lecture and three hours laboratory. Fee: $45. (same as EES 280)

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.

Prerequisites: Mth 211, 212.

PHY 310. ANALYTICAL MECHANICS **Three credits**

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.

Prerequisites: Mth 211, 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-ray diffraction techniques. Three hours lecture and one three-hour laboratory a week. Fee: $50. (same as MaE 311)

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: $45 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: $45.

Prerequisite: Phy 202.

PHY 331. ELECTRICITY & MAGNETISM I **Three credits**

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. (same as EE 331)

Prerequisites: Mth 211, Phy 202.

PHY 332. ELECTRICITY & MAGNETISM II **Three credits**

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. (same as EE 332)

Prerequisite: Phy 331/EE 331.

PHY 333. ELECTRICITY & MAGNETISM LAB 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: $45. (same as EE 333)

Corequisite: Phy 331/EE 331.

PHY 334. ELECTRICITY & MAGNETISM LAB II **One credit**

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: $45. (same as EE 334)

Prerequisite: Phy 333/EE 333.

PHY 336. OPTICS AND LIGHT **Three 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 of class per week.

Prerequisite: Phy 106 or 202.

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. Lecture-discussion three hours a week.

Prerequisites: Phy 106 or 202, Mth 211 or 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.

Prerequisites: Phy 301 or 310, Mth 361.

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: $45.

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.

PHY 380. NUCLEAR PHYSICS **Three credits**

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 **One credit**

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: $45.

Prerequisite: Phy 221.

Corequisite: Phy 380.

PHY 390. PRACTICUM **Three credits**

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 **One credit**
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 and detailed progress report are required.
Prerequisite: Senior standing in physics.

PHY 392. SENIOR PROJECTS II **Two credits**
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. ADVANCED LABORATORY I **Two credits**
A laboratory course of experiments and projects in fundamental and applied physics, concentrating on lasers and modern optics. One four and one-half hour meeting per week. Fee: $50.
Prerequisites: Phy 221, junior or senior standing in the sciences.

PHY 394. ADVANCED LABORATORY II **Two credits**
A laboratory course of experiments and projects in fundamental and applied physics, concentrating on atomic physics, nuclear physics, and physical properties of materials, including the interaction of radiation with materials. One four and one-half hour meeting per week. Fee: $50.
Prerequisites: Phy 221, junior or senior standing in the sciences.

PHY 395-396. INDEPENDENT RESEARCH **One to three credits**
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.
Prerequisites: Senior standing and approval of department chairperson.

PHY 397. SEMINAR **Zero or one credit**
Presentations and discussions of selected topics in physics.
Prerequisite: Approval of department chairperson is required.

PHY 399. COOPERATIVE EDUCATION **One to six credits**
Professional cooperative education placement in a private/public organization related to the student's academic objectives and career goals. In addition to their work experience, students are required to submit weekly reaction papers and an academic project to a Faculty Coordinator in the student's discipline. (See page 64 in Bulletin for placement procedures.)
Prerequisites: Sophomore standing, 2.0 cumulative average, consent of academic advisor, approval of placement by department chairperson.

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 mechanics; semiconductors; cryogenics; health physics. May be repeated for credit.
Prerequisite: Varies with topic studied.

University-wide Core Studies Courses

CORE STUDIES

The following courses are interdisciplinary offerings which are included in the Core Curriculum.

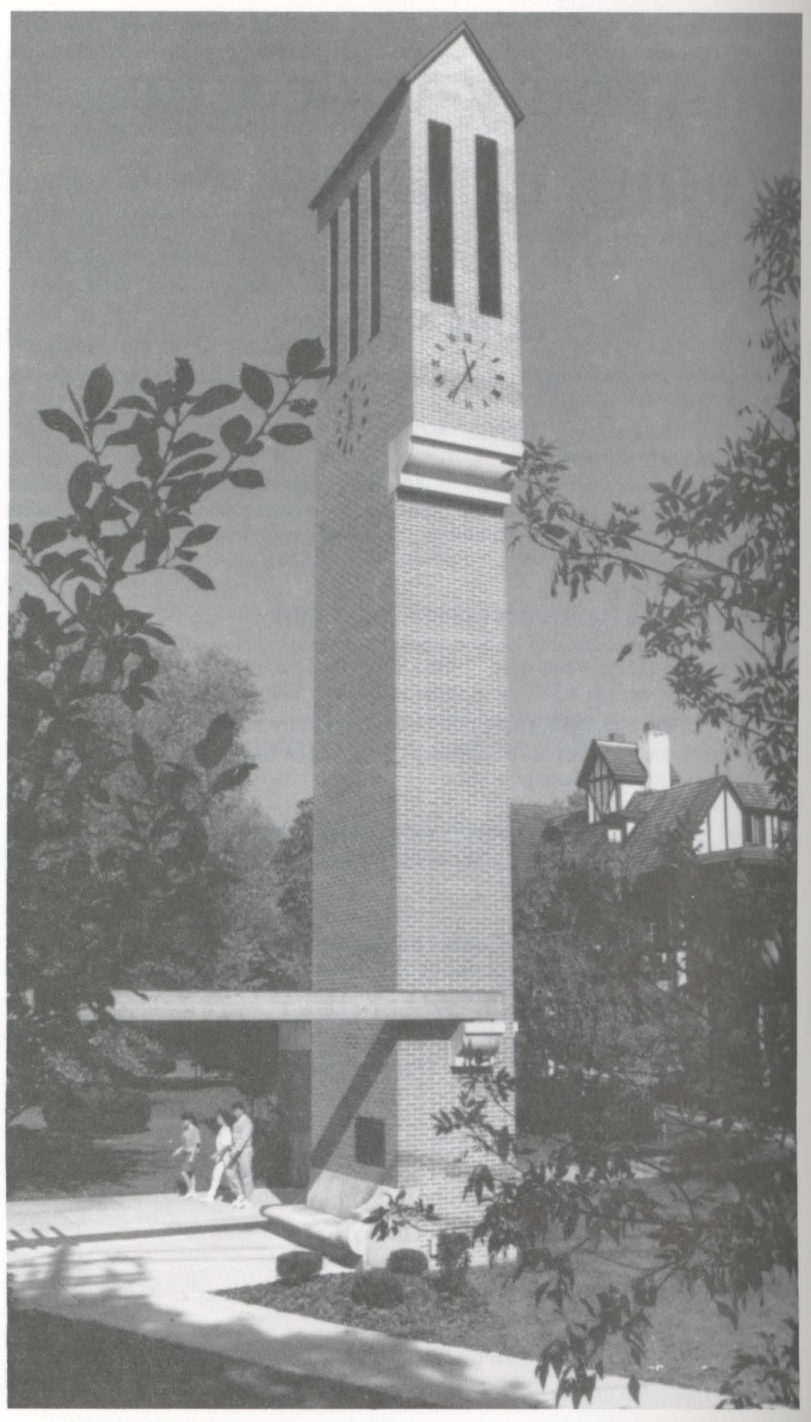
CST 101. CORE STUDIES I **One credit**
The course introduces entering students to skills and perspectives which facilitate academic success in college. The course meets one period weekly. Students who matriculate at Wilkes with 15 or more credits of college or university course-work may elect to exempt Core Studies I with credit.

CST 201. CORE STUDIES IN CULTURE AND VALUE **Three credits**
A study of the seminal ideas and issues in world history and cultures, offered in Distribution Area I of the Core, Culture and Value.

CST 202. CORE STUDIES IN SCIENCE AND TECHNOLOGY **Three credits**
A study of fundamental issues and principles in science and technology, offered in Distribution Area II of the Core, The Scientific World.

CST 203. CORE STUDIES IN SOCIETY AND HUMAN BEHAVIOR **Three credits**
A participatory discussion of issues and concerns of the social and behavioral sciences, offered in Distribution Area III of the Core.

CST 204. CORE STUDIES IN ARTISTIC EXPRESSION **Three credits**
Special topics in art, music, and theater are explored as a general education experience in Distribution Area IV of the Core.



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B.S., M.S. Wilkes, Ed.D. Temple

ANNE A. GRAHAM (1979), Director of Project Upward Bound
B.A., M.S. Wilkes

SUSAN A. HRITZAK (1983), Assistant Registrar
B.S., M.B.A. Wilkes

RACHAEL L. LOHMAN (1981), Director of Financial Aid
B.S. Wilkes, M.Ed. Bloomsburg

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GUSTAV J. STANGLINE (1989), Coordinator of Academic Computing
B.S. Scranton, M.S. Marywood

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JON LINDGREN (1989), University Librarian
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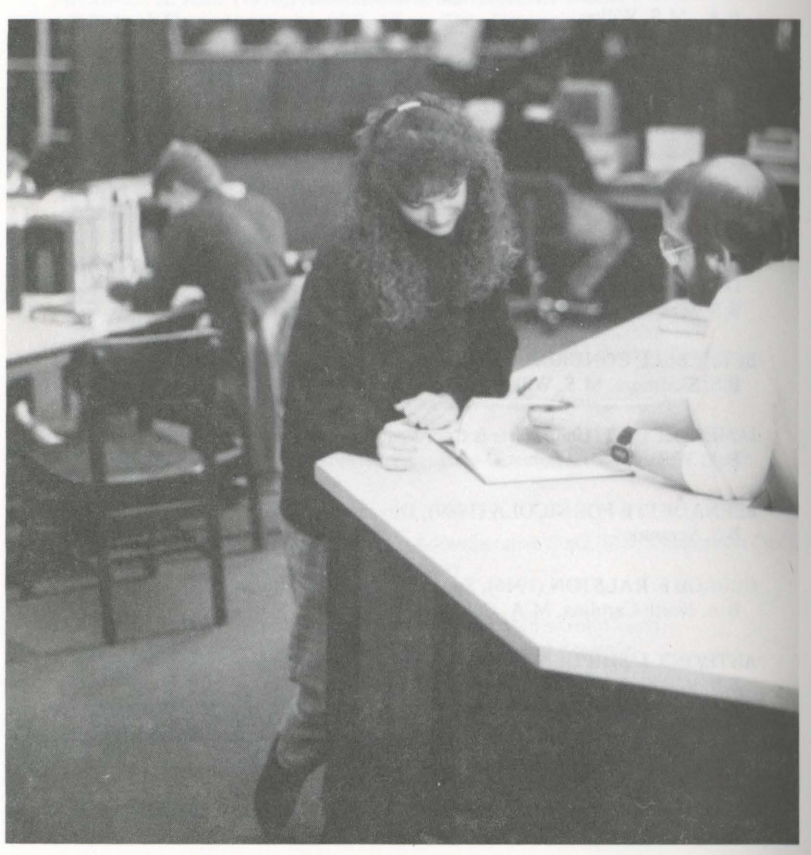

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ROBERT J. HEAMAN	Acting Vice President for Academic Affairs

The School of Business, Society and Public Policy

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ASHIM K. BASU	Associate Dean
MERLE J. PEPER	Associate Dean
WAGIHA A. TAYLOR	Associate Dean

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MERLE J. PEPER
ASHIM K. BASU
THOMAS J. BALDINO
JOHN H. NATZKE

Programs
Accounting
Business Administration and Economics
Health Care Administration
Political Science/Public Administration
Sociology/Anthropology

The School of Liberal Arts and Human Sciences

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PATRICIA M. HEAMAN	Associate Dean

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BRADFORD L. KINNEY
DOUGLAS JAY LYNCH, Acting
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JEROME W. CAMPBELL
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Communications
Education
Director of Teacher Extension Programs
English
Foreign Languages and Literature
History
Music, Theater, Dance
Nursing
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Philosophy
Physical Education and Health
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SHRINIVAS PENUGONDA (1987), Assistant Professor of Business Administration
B.S. Osmania University, India, M.B.A. Wilkes

MERLE J. PEPER (1989), Associate Professor of Business Administration/Associate Dean, School of Business, Society and Public Policy
B.B.A. McMurry (TX), M.B.A. Southeastern Louisiana, Ph.D. Louisiana State

JOHN S. PHILLIPS (1991), Associate Professor of Chemistry
B.A. Western Maryland, Ph.D. Purdue

KENNETH A. PIDCOCK (1988), Assistant Professor of Biology
B.S. Millersville, M.S., Ph.D. Lehigh

DANIEL PINDZOLA (1987), Associate Professor of Earth and Environmental Sciences/Chemical Engineering
B.S., M.S., Ph.D. Polytechnic Institute of Brooklyn

WALTER A. PLACEK, JR., (1969), Professor of Physics/Education
B.S. Wilkes, M.Ed. Pennsylvania State, Ph.D. Pennsylvania

DIANE M. POLACHEK (1986), Assistant Professor of Education
B.A., M.S. Wilkes, M.S. California

RICHARD G. RASPEN (1967), Associate Professor of Business Administration
B.S., M.B.A. Wilkes, M.Ed. Bloomsburg, Ph.D. Pennsylvania

ALI RAZAVI (1984), Associate Professor of Materials Engineering
B.S. Tehran, Iran, M.S. Manchester, England, Ph.D. Drexel

BRIAN T. REDMOND (1976), Associate Professor of Earth and Environmental Sciences/Geology/Associate Dean, School of Sciences and Engineering
B.S., M.S. Michigan State, Ph.D. Rensselaer Polytechnic

JOHN G. REESE (1955), Professor of Physical Education
B.S., M.Ed. Pennsylvania State

BRUCE J. REIPRICH (1980), Assistant Professor of Music
B.M., M.A. Eastman School of Music, Ph.D. Iowa

MARIANNE M. REXER (1990), Assistant Professor of Accounting
B.S. Wilkes, M.S. Bryant

JAMES P. RODECHKO (1968), Dean, College of Liberal Arts and Human Sciences/Professor of History
B.A. Hofstra, M.A., Ph.D. Connecticut

SHERRY E. RODIN (1987), Assistant Professor of Business Administration
B.A., M.B.A. Wilkes

ZANGWILL ROSENBAUM (1989), Assistant Professor of Mathematics/Computer Science
B.S., M.A. Brooklyn, M.A. Pennsylvania State

RALPH B. ROZELLE (1962), Dean of Health Sciences/Professor of Chemistry
B.S. Wilkes, Ph.D. Alfred

ROSENDO E. SANTOS, JR., (1968), Associate Professor of Music
B.M. Philippines, M.M. Catholic University of America

DORIS B. SARACINO (1960), Associate Professor of Physical Education
B.S., M.S. East Stroudsburg

MARY ANN SAUERAKER (1983), Associate Professor of Nursing
B.S. Wilkes, M.S. Pennsylvania State

ROLAND C. SCHMIDT, JR., (1962), Associate Professor of Physical Education
B.S. Bloomsburg, M.S. Scranton

JUDITH K. SCHREIBER (1974), Associate Professor of Nursing
B.S. Wilkes, M.S. Pennsylvania, M.S. Scranton

RONALD D. SCHWARTZ (1990), Associate Professor of Business Administration
B.A. Case Western Reserve, M.A. John Carroll, Ph.D. Akron

ROBERT D. SEELEY (1989), Associate Professor of Economics
B.A. Franklin and Marshall, Ph.D. Maryland

KUO-KANG SHAO (1966), Professor of History
B.A. Taiwan, M.S., Ph.D. Pennsylvania

BARBARA SHEER (1987), Associate Professor of Nursing
B.S.N. Pennsylvania, P.N.P. Rutgers, M.S.N. SUNY, Binghamton, D.N.S. Widener

TIMOTHY J. SICHLER (1991), Visiting Assistant Professor of Engineering
B.S.E.E., M.S.E.E. Wilkes

HERBERT B. SIMON (1969), Professor of Art
B.A., M.A. New York

ROBIN M. SNYDER (1990), Assistant Professor of Computer Science
B.S. United States Military Academy, Ph.D. Pennsylvania State

JOHN J. SOSIK (1990), Assistant Professor of Accounting
B.S. King's, M.B.A. Wilkes

RICHARD E. SOURS (1965), Professor of Mathematics/Computer Science
B.S. Towson, M.S. Michigan State, Ph.D. Virginia

THYAGARAJAN SRINIVASAN (1985), Assistant Professor of Electrical Engineering
B.E., M.Sc (Engg) India, M.S. Oklahoma State, Ph.D. Pennsylvania State, P.E. (Elec)

MICHAEL A. STEELE (1989), Assistant Professor of Biology
B.S. Millersville, Ph.D. Wake Forest

ROBERT O. STEELE (1990), Assistant Professor of French
B.A., B.S., M.A. Michigan State

WILLIAM H. STERLING (1976), Associate Professor of Art
B.A. William & Mary, Ph.D. Iowa

ROBERT D. STETTEN (1968), Associate Professor of Psychology
B.A., Ph.D. Lehigh, M.S., M.A. Iowa

WILLIAM R. STINE (1965), Professor of Chemistry
B.S. Union, Ph.D. Syracuse

HOWARD A. SWAIN, JR., (1960), Professor of Chemistry
B.S. Grove City, Ph.D. Pennsylvania

JOHN FARLEY SWANSON (1990), Assistant Professor of Theater Arts
B.A. Adams State, M.A. Denver, M.F.A. School of the Arts (N.C.)

WAGIHA ABDEL-GAWAD TAYLOR (1969), Professor of Economics/Associate Dean, School of Business, Society and Public Policy
B.A. Alexandria, M.A. Brown, Ph.D. Clark

SHARON G. TELBAN (1975), Associate Professor of Nursing
B.S., M.S. Wilkes, M.S. Pennsylvania State

LEE C. TERRY (1968), Professor of English
B.A. Southern Methodist, Ph.D. Texas

STEPHEN J. TILLMAN (1970), Professor of Computer Information Systems
B.S. Brown, M.S. Lehigh, Ph.D. Brown

PHILIP R. TUHY (1960), Assistant Professor of Political Science
B.A. Valparaiso, M.G.A. Pennsylvania

LESTER J. TUROCZI (1972), Professor of Biology
B.A., M.S., Ph.D. Rutgers

ROBERT C. TUTTLE (1989), Assistant Professor of Sociology
B.A. Kansas, M.A., Ph.D. Notre Dame

JIE WANG (1990), Assistant Professor of Computer Science
B.A., M.S. Zhongshan, Ph.D. Boston University

LOUISE WARD (1989), Assistant Professor of Nursing
B.S.N. Russell Sage, M.N. Pennsylvania

ROSEMARY WILLIAMS (1987), Associate Professor of Education/Director of Teacher Extension Programs
B.A., M.S. Wilkes, D.Ed. Pennsylvania State

PHILIP WINGERT (1986), Assistant Professor of Physical Education
B.S. SUNY, Cortland, M.E. Virginia Polytechnic

BING K. WONG (1968), Professor of Mathematics/Computer Science
B.A. Kansas State at Pittsburgh, M.A., Ph.D. Illinois

CAROL W. ZACK (1983), Associate Professor of Nursing
B.S. Bloomsburg, M.S. Pennsylvania State, M.S. Wilkes

BRIDGETTE W. ZIELINSKI (1987), Assistant Professor of Nursing
B.S. Wilkes, M.S.N. SUNY, Binghamton

President Emeritus

ROBERT S. CAPIN
Professor of Accounting, and President from 1975-1984. M.B.A. Lehigh, Doctor of Humane Letters Wilkes

Faculty Emeriti

FRANK G. BAILEY
Associate Professor of Physics, Emeritus, Ph.D. Polytechnical Institute of Brooklyn

MICHAEL J. BARONE
Associate Professor of Education, Emeritus, M.S. Bucknell

FREDERIC E. BELLAS
Professor of Physics, Emeritus, Ph.D. Pennsylvania State

JAMES J. BOHNING
Professor of Chemistry, Emeritus, Ph.D. Northeastern

RICHARD B. CHAPLINE
Professor of Music, Emeritus, B.S., M.S. Juilliard

FRANCK G. DARTE
Professor of Education, Emeritus, Ed.D. Pennsylvania

FRANCIS J. DONAHOE
Professor of Physics, Emeritus, Ph.D. Pennsylvania

JEAN M. DRISCOLL
Professor of Political Science, Emerita, Ph.D. Northwestern

WELTON FERRAR
Professor of Economics Emeritus, M.S. Pennsylvania

HERBERT GARBER
Associate Professor of Music, Emeritus, Ed.D. Columbia

GEORGE GERA
Associate Professor of Business Administration Emeritus, M.A. Columbia

ALFRED S. GROH
Associate Professor of English and Theater Arts, Emeritus, M.A. Columbia

EUGENE L. HAMMER
Professor of Education, Emeritus, Ed.D. Columbia

KLAUS HOLM
Associate Professor of Theater Arts, Emeritus, M.F.A. Yale

BRONIS KASLAS
Professor of History, Emeritus, Ph.D. Strasbourg

DAVID M. LEACH
Professor of History, Emeritus, Ph.D. Rochester

CHARLOTTE V. LORD
Professor of English, Emerita, Ph.D. Pennsylvania

HILDA A. MARBAN
Professor of Foreign Languages, Emerita, Ph.D. Havana, Ph.D. Virginia

RUTH W. McHENRY
Professor of Nursing, Emerita, M.A. Columbia

LEOTA NEVIL
Assistant Professor of Library Science, Emerita, M.S. Wilkes

ROBERT E. OGREN
Professor of Biology, Emeritus, Ph.D. Illinois

GEORGE F. RALSTON
Dean of Student Affairs, Emeritus, M.A. Columbia

CHARLES B. REIF
Professor of Biology, Emeritus, Ph.D. Minnesota

J. PHILIP RICHARDS
Associate Professor of Art, Emeritus, B.F.A. Syracuse

THOMAS R. RICHARDS
Professor of Mathematics, Emeritus, M.S. Bucknell

ROBERT C. RILEY
Professor of Psychology, Emeritus, Ph.D. Pennsylvania State

PHILIP L. RIZZO
Professor of English, Emeritus, Ph.D. Pennsylvania

RUTH T. ROBERTS
Instructor of English, Emerita, B.A. Goucher

FRANCIS J. SALLEY
Professor of Chemistry, Emeritus, M.S. Pennsylvania

JOSEPH H. SALSBURG
Assistant Professor of Mathematics and Computer Science, Emeritus, M.A. Columbia

CROMWELL E. THOMAS
Associate Professor of Engineering, Emeritus, B.S. Washington and Lee

ROBERT E. WERNER
Professor of Economics, Emeritus, Ph.D. Wisconsin

ROY E. WILLIAMS
Professor of Philosophy, Emeritus, Ph.D. Drew

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Building Key

Symbol	Building and Location
A	Annette Evans Faculty and Alumni House, 146 South River Street
B	Chase Hall, 184 South River Street
C	Church Hall, 187 South Franklin Street
D	Conyngham Student Center, 130 South River Street
E	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	Evans Hall, Corner of South River and Northampton Streets
H	Kirby Hall, Corner of River and South Streets
I	Marts Center, 272-274 South Franklin Street
J	Max Roth Center, 215 South Franklin Street
K	Pickering Hall, Wright Street
L	Slocum Hall, 262-264 South River Street
M	Stark Learning Center, 160 South River Street
N	Sturdevant Hall, 129 South Franklin Street
O	Weckesser Hall, 170 South Franklin Street

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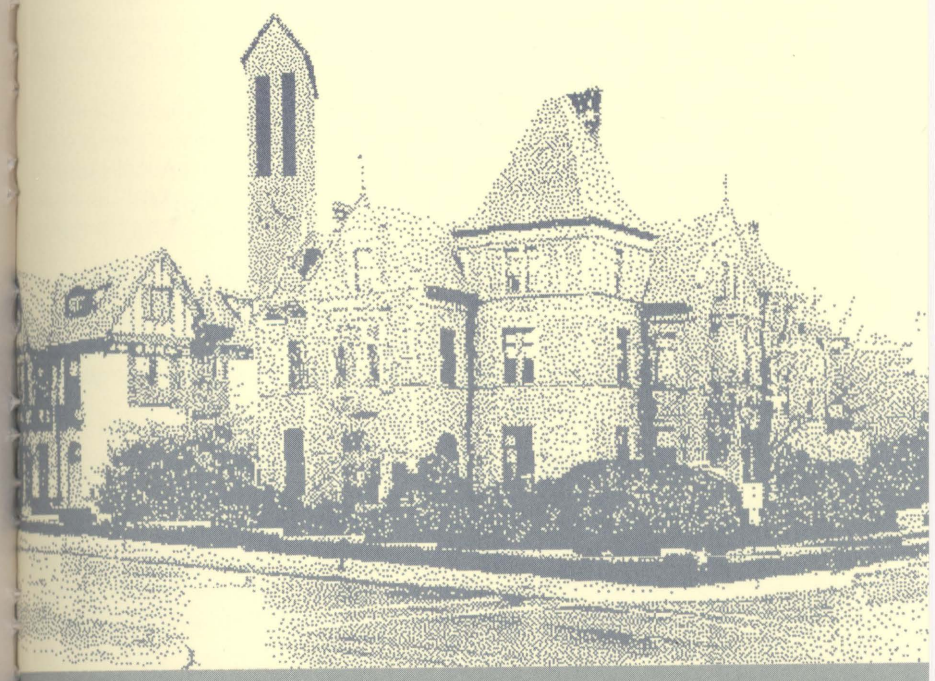
WILKES UNIVERSITY
1991-92 ACADEMIC CALENDAR

Summer 1991 – Pre-Session		
Classes Commence	Monday, May 20, 1991	8:00 a.m.
Classes End	Friday, June 7, 1991	12:00 noon
	(Including Final Examinations)	
First Day Session		
Classes Commence	Monday, June 10, 1991	8:00 a.m.
Classes End	Friday, July 12, 1991	12:00 noon
	(Including Final Examinations)	
Second Day Session		
Classes Commence	Monday, July 15, 1991	8:00 a.m.
Classes End	Friday, August 16, 1991	12:00 noon
	(Including Final Examinations)	
Eight-Week Evening Session		
Classes Commence	Monday, June 10, 1991	6:00 p.m.
Classes End	Friday, August 2, 1991	10:00 p.m.
	(Including Final Examinations)	
Fall Semester – 1991		
Classes Commence	Wednesday, August 28, 1991	8:00 a.m.
Opening Convocation and **Commencement**	Thursday, August 29, 1991	11:15 a.m.
Labor Day Recess	Friday, August 30, 1991	5:00 p.m.
Classes Resume	Tuesday, September 3, 1991	8:00 a.m.
Fall Recess	Friday, October 11, 1991	5:00 p.m.
Classes Resume	Wednesday, October 16, 1991	8:00 a.m.
Thanksgiving Recess	Tuesday, November 26, 1991	10:00 p.m.
Classes Resume	Monday, December 2, 1991	8:00 a.m.
Classes End	Wednesday, December 11, 1991	10:00 p.m.
	(Follow Monday Class Schedule)	
Final Examinations Begin	Friday, December 13, 1991	8:30 a.m.
Final Examinations End	Saturday, December 21, 1991	4:30 p.m.
Intersession 1991	Thursday, January 2, 1992 to Saturday, January 18, 1992	8:00 a.m. 5:00 p.m.
Spring Semester – 1992		
Classes Commence	Tuesday, January 21, 1992	8:00 a.m.
Winter **Commencement**	Thursday, January 23, 1992	11:15 a.m.
Winter Recess	Thursday, February 20, 1992	10:00 p.m.
Classes Resume	Monday, February 24, 1992	8:00 a.m.
Spring and Easter Recess	Friday, April 10, 1992	5:00 p.m.
Classes Resume	Tuesday, April 21, 1992	8:00 a.m.
Special Note	Tuesday, May 5, 1992 *(Follow Friday Class Schedule)*	
Classes End	Wednesday, May 6, 1992 *(Follow Monday Class Schedule)*	10:00 p.m.
Final Examinations Begin	Friday, May 8, 1992	8:30 a.m.
Final Examinations End	Saturday, May 16, 1992	4:30 p.m.
Commencement	Saturday, May 23, 1992	2:00 p.m.

Undergraduate and Graduate Course Offerings

Summer 1992



WILKES

UNIVERSITY

General Information

How to Register

(Registrations accepted after May 1, 1992)

Current Wilkes Students: Full-time Wilkes undergraduates must pre-register with their advisor and submit the signed pre-registration form to the Evening, Summer, and Weekend Programs Office, Conyngham Student Center, second floor.

Part-time students register with the Office of Evening, Summer, and Weekend Programs, Conyngham Student Center, second floor. Academic advisement is available by calling 831-4235, for an appointment.

Graduate students register at the Registrar's Office located at the Marts Center. Registration forms can be obtained by calling the Registrar's Office at 824-4651, extension 4853. Completed forms should be returned in person to the Registrar's Office.

Visiting students: Students who are attending Wilkes for the summer only, and who will transfer their summer credits to their home institution, will complete an application and register with the Office of Evening, Summer, and Weekend Programs. Visiting students must submit a letter of approval from their dean or appropriate school official for the summer courses being taken at Wilkes.

High School students: Students who are currently attending high school and want to take a course at Wilkes over the summer may register after receiving written permission from their principal or guidance counselor. Interested students can apply and register at the Evening, Summer, and Weekend Programs Office.

Admission of New Students

Part-time Students: Application for admission to Wilkes as a part-time day, evening, or weekend student is made to the Office of Evening, Summer, and Weekend Programs at the Conyngham Student Center. Applicants should call 831-4235, to schedule an appointment with one of the academic counselors.

Full-time Students: Application for admission to Wilkes as a full-time student should be made to the Office of Admissions at Chase Hall. Please call 824-4651, extension 4400, for more information or an appointment.

Graduate Students: Application for admission to Wilkes as a part-time or full-time graduate student is made to the Office of Admissions at Chase Hall. Please call 824-4651, extension 4400, for more information or an appointment.

Registration Hours

The Office of Evening, Summer, and Weekend Programs at the Conyngham Student Center, the Bookstore in Church Hall, and the Financial Management Office in Sturdevant Hall will be open during extended registration hours.

Day Session I and Evening Session

Wednesday, June 3	8:30 a.m. until 8:00 p.m.
Thursday, June 4	8:30 a.m. until 8:00 p.m.

Day Session II

Thursday, July 9	8:30 a.m. until 8:00 p.m.

Summer Session Calendar - 1992

Pre-Session

Summer Registration Begins	May 1
Classes Commence	May 18
Last Day to Add a Class	May 20
Last Day to Drop without Academic Prejudice	May 20
End of 50% Refund Period	May 23
Classes End	June 5

Day Session I

Summer Registration Begins	May 1
Classes Commence	June 8
Last Day to Add a Class	June 10
Last Day to Drop without Academic Prejudice	June 10
End of 50% Refund Period	June 13
Classes End	July 10

Day Session II

Summer Registration Begins	May 1
Classes Commence	July 13
Last Day to Add a Class	July 15
Last Day to Drop without Academic Prejudice	July 15
End of 50% Refund Period	July 18
Classes End	August 14

Evening Session

Summer Registration Begins	May 1
Classes Commence	June 8
Last Day to Add a Class	June 11
Last Day to Drop without Academic Prejudice	June 11
End of 50% Refund Period	June 20
Classes End	July 30

Final Examinations will precede the ending date of each session.

Change of Schedule

Wilkes 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 soon as possible.

Day Care

Day care is available for young children of Wilkes students from 7:30 a.m. to 5:00 p.m. at Child Development Council Centers near the campus. These services are partially subsidized by the University. For further information contact Ms. Anne Thomas, 824-4651, extension 4230.

Residence Hall and Dining Facilities

Residence Hall space is available to students during all summer sessions. All residence hall fees must be paid prior to taking occupancy. The goods and services with which the student will be provided shall include: a 15 meal per week board plan (Monday through Friday only), laundry facilities, a living space furnished with a bed, desk, desk chair, dresser, and wardrobe/closet space. All meals will be taken in the Pickering Hall dining facility. The Summer fee for room and board is based on a charge of $150.00 per week.

The snack bar at the Conyngham Student Center is open to all students for breakfast and light lunches on a cash basis from 8:00 a.m. until 1:00 p.m., Monday through Friday.

Inquiries concerning residence hall or dining facilities should be made to:

The Office of Residence Life
Wilkes University
Wilkes Barre, PA 18766

Expenses

Undergraduate tuition for the 1992 summer sessions is $265 per credit hour. A $5.00 per credit hour general fee will be charged. Laboratory fees will be charged as indicated. Graduate tuition for the 1992 summer sessions is $330 per credit hour. The $5.00 per credit hour general fee will also apply.

Tuition for PLS courses will be charged at the rate of $425 for PSEA, PFT and $445 for non-members for each course.

All charges must be paid at the time of registration unless alternate arrangements have been approved by the Financial Management Office, located at Sturdevant Hall. Books and supplies may be purchased at the Bookstore and must be paid for at the time of purchase. Wilkes University accepts VISA and MasterCard for tuition and fee payments, as well as books and supplies.

Financial Aid for Students

Students may apply for financial aid during the summer sessions. Inquiries about financial aid for summer study should be made to the Director of Financial Aid prior to June 1.

Students enrolled at least half-time (six credits over the summer) may be eligible to receive loans through the Stafford Loan Program. Funds may also be available through the Pell Grant.

Full-time summer school student (12 credits over the summer) may also be eligible for the Pennsylvania State Grant Program.

Part-time and full-time employment may be available for students through the University Work Study Program or the Institutional Employment Program.

Employer Paid Tuition Reimbursements

Wilkes will gladly defer payment for students who have tuition benefits from their employers. Deferment forms and additional information are available from the Office of Evening, Summer, and Weekend Programs.

Withdrawal/Refund

Students who have paid their tuition in full and who withdraw from courses or from the University during the first week of the first or second day session, during the first two weeks of the eight week evening session, or by May 23 of the Presession will receive a refund of one-half of their tuition, upon written request to the Office of Financial Management. Students who have paid their tuition in full and who withdraw from weekend courses or from the Weekender Program will receive a refund of one-half of their tuition through the second weekend of classes, upon written request to the Office of Financial Mangement. No refunds will be made to students who withdraw from courses or from the University after these periods. Fees are non-refundable. Students who are suspended or expelled from the University are not entitled to any refunds.

Please note: Once students complete a registration form they are considered registered for that/those course(s) and as such will be billed appropriate tuition charges. Students are not withdrawn from courses when they do not attend. Students must complete a withdrawal form, available at the Office of Evening, Summer, and Weekend Programs or the Registrar's Office.

Veterans' Affairs

Information about veterans' benefits is available through the Veteran's Office at the Marts Center, second floor.

Library

The Eugene Shedden Farley Library is an excellent resource for students attending Wilkes University. The library houses over 200,000 volumes, 1200 periodicals and subscriptions, in addition to 700,000 pieces of microfilm.

Visiting students need only provide proof of summer registration to the library staff and a temporary card will be issued. The library staff will gladly assist students in learning how to use the collection.

Summer 1992 Hours:

Monday through Thursday	8:00 a.m. until 10:00 p.m.
Friday	8:00 a.m. until 5:00 p.m.
Saturday	12:00 noon until 5:00 p.m.
Sunday	Closed

Legend

M - Monday
T - Tuesday
W - Wednesday
R - Thursday
F - Friday
S - Saturday
U - Sunday
- indicates through

Boldface type indicates p.m.

Presession Course Offerings
May 18 - June 5

Course	Description	Time	Room	Credits
ART 298P	Surface Design (Batik)	M-F 8:30-11:30	Bedford 23	3
ART 228P	Watercolor Painting	M-F **1:00-4:00**	SLC 206	3
BIO 106P	Contemporary Issues in Biology	M-F 8:30-11:30	SLC 359	3
ED 202P	Educational Psychology Prereq: PSY 101	M-F 8:30-11:30	SLC 270	3
ED 322P	Language Arts in Early Childhood Education	M-F 10:00-12:00	SLC 207	2
ENG 298P	The English Lyric	M-F 8:30-11:30	SLC 347	3
PE 137P	Wellness Walking	M-F **1:00-2:00**	Gym	0
PE 160P	Racquetball	M-F 8:30-9:30	Gym	0
PE 298P	Philosophy, Principles, Organization of Athletics in Education	M-F 8:30-10:30	Marts 117	2
PE 398P	Critical Issues in Health	M-F 8:30-11:30	Marts 213	3
PSY 215P	Research Design & Analysis	M-F 8:30-11:30	SLC 342	3
SOC 235P	Crime & Juvenile Delinquency Prereq: SOC 101, ANT 101, or instructor's consent	M-F 8:30-11:30	SLC 334	3

Special Course Offering

EES 398P	Geology of the Pennsylvania Appalachian Trail	May 27-June 5	N/A	2

The course consists of a 10 day backpacking trip which will examine several key geological sites along a 70 mile stretch of the PA Appalachian Trail. Two planning meetings will precede the trip. Prereq: EES 211, EES 115, or instructor's consent

Day Session I
June 8 - July 10

Course	Description	Time	Room	Credits
ACCOUNTING				
ACC 121A	Intro. Financial Accounting	M-F 8:00-9:40	SLC 411	3
ACC 122A	Intro. Managerial Accounting Prereq: ACC 121	M-F 8:00-9:40	SLC 409	3
ACC 233A	Cost Accounting Prereq: ACC 212	M-F **12:30-2:10**	SLC 424	3
ART				
ART 101A	Experiencing Art	M-R **12:30-2:35**	SLC 206	3
BIOLOGY				
BIO 113A	Microbiology*	TR 10:15-**12:20**	SLC 311	4
	(Fee: $40)	W 10:15-**1:20**	SLC 311	
BIO 113A1	Laboratory*	TR **1:00-4:00**	SLC 305	
	(*Special Start Date: Classes will begin on June 2nd.)			
BIO 385A	Field Botany Prereq: BIO 121-122 or instructor's consent	TWR 10:15-11:55	SLC 359	3
BIO 385A1	Laboratory	TWR **1:00-4:00**	SLC 349	
BIO 398A	Cancer Biology Prereq: BIO 121-122, 221-222 or instructor's consent	M-R 8:00-10:05	SLC 359	3
BUSINESS ADMINISTRATION				
BA 209A	Business Correspondence & Reports Prereq: Junior standing	M-F 8:00-9:40	SLC 342	3
BA 225A	Managerial Finance Prereq: Junior/Senior standing	M-R 10:15-**12:20**	SLC 160	3
BA 256A	Business & Society Prereq: Junior/Senior standing	M-F 10:15-11:55	SLC 205	3
BA 261A	Principles of Retailing Prereq: BA 222	M-R 10:15-**12:20**	SLC 211	3
BA 351A	Management of Organizations Prereq: Junior standing	M-R 8:00-10:05	SLC 204	3
BA 354A	Organizational Design & Behavior Prereq: BA 351	M-R 10:15-**12:20**	SLC 313	3
CHEMISTRY				
CHM 111A	Intro. Chemical Reactions (Fee: $40)	M-R 10:15-**12:20**	SLC 209	4
CHM 111*A	Laboratory	MW **1:00-4:00**	SLC 263	
CHM 115A	Elements & Compounds (Fee: $40)	M-R 10:15-**12:20**	SLC 204	4
CHM 115*A	Laboratory	TR **1:30-4:15**	SLC 259	
CHM 115A1	Discussion	MW **1:30-2:45**	SLC 204	
CHM 231A	Organic Chemistry I Prereq: CHM 116 or CHM 118 (Fee: $40)	M-F 10:15-11:55	SLC 270	4
CHM 231*A	Laboratory	MTW **1:15-4:15**	SLC 264	

Course	Description	Time	Room	Credits
COMMUNICATIONS				
COM 101A	Fundamentals of Public Speaking	M-R 8:00-10:05	SLC 270	3
COM 221A	Audio Production Prereq: COM 220	M-R 8:00-10:05	TBA	3
COM 260A	Basic Newswriting Prereq: ENG 101, 102 and COM 100	M-R 10:15-**12:20**	TBA	3
COMPUTER SCIENCE				
CS 115A	Survey of Computers & DP Macintosh (Fee: $50)	M-F 10:15-**12:05**	SLC 411	3
EARTH & ENVIRONMENTAL SCIENCES				
EES 130A	Environmental Awareness (Fee: $40)	M-R 10:15-**12:20**	SLC 435	3
EES 130A1	Laboratory	W **1:00-3:00**	SLC 435	
ECONOMICS				
EC 231A	Applied Economic Statistics I Prereq: EC 101 and 102	M-R 10:15-**12:20**	SLC 101	3
EDUCATION				
ED 302A	Children's Literature	M-R 8:00-10:05	SLC 320	2
ENGINEERING				
EE 211A	Circuit Theory I Prereq: MTH 112	M-R 10:15-**12:20**	SLC 223	3
EE 251A	Electronics I Prereq: EE 212	M-R 8:00-10:05	SLC 45	3
EE 321A	Electromechanical Energy Conversion Prereq: EE 211	M-R 10:15-**12:20**	SLC 45	3
EGR 283A	Measurement Lab I (Fee: $25)	MR **1:00-4:00**	SLC 23	1
ME 231A	Statics & Dynamics Prereq: PHY 201, MTH 112	M-R 8:00-10:05	SLC 223	3
ENGLISH				
ENG 101A	Composition I	M-R 10:15-**12:20**	Kirby 302	3
ENG 102A	Composition II Prereq: ENG 101	M-R 8:00-10:05	Kirby 302	3
ENG 151A	Classical Tradition in Literature Prereq: ENG 102	M-R 8:00-10:05	Kirby 102	3
ENG 152A	Western Tradition in Literature Prereq: ENG 102	M-R 10:15-**12:20**	Kirby 303	3
ENG 201A	Advanced Composition *Writing Intensive*	M-R 10:15-**12:20**	Kirby 309	3
FOREIGN LANGUAGES				
FR 101A	Elementary French I	M-R 8:00-10:05	Kirby 303	3
FR 203A	Intermediate French I Prereq: FR 102 or two years of high school French	M-R 10:15-**12:20**	TBA	3

Course	Description	Time	Room	Credits
GR 101A	Elementary German I	M-R 8:00-10:05	Kirby 309	3
GR 203A	Intermediate German I	M-R 10:15-**12:20**	TBA	3
	Prereq: GR 102 or two years of high school German			
SP 101A	Elementary Spanish I	M-R 8:00-10:05	TBA	3
SP 203A	Intermediate Spanish I	M-R 10:15-**12:20**	TBA	3
	Prereq: SP 102 or two years of high school Spanish			
HISTORY				
HST 101A	World Civilization I	M-R 8:00-10:05	SLC 424	3
HST 102A	World Civilization II	M-R 10:15-**12:20**	SLC 424	3
MATHEMATICS				
MTH 101A	Fundamentals of Math I	M-F 8:00-9:50	SLC 405	3
MTH 103A	Math for Elementary Teachers I	M-F 8:00-9:50	SLC 403	3
MTH 105A	Calculus for Life, Managerial & Social Sciences	M-F 10:15-**12:30**	SLC 405	4
NURSING				
NSG 305A	Intro. to Nursing Research	M-R 8:00-10:05	SLC 311	3
	Prereq: NSG 204, MTH 150			
PHILOSOPHY				
PHL 101A	Intro. to Philosophy	M-R 8:00-10:05	SLC 316	3
PHL 230A	Social & Political Philosophy	M-R 10:15-**12:20**	SLC 316	3
	Prereq: PHL 101 or instructor's consent			
PHYSICAL EDUCATION				
PE 115A	Wellness Weight Training	M-F 10:15-11:15	Gym	0
PE 137A	Wellness Walking	M-F 10:15-11:15	Gym	0
PE 298A	Wellness Eating	M-R **12:30-1:30**	Marts 117	1
PE 310A	Treating Athletics Injuries	M-R 8:00-10:05	Marts 117	3
PE 315A	Emergency Care Techniques	M-R 10:15-**12:20**	Marts 117	3
	Prereq: Possession of current CPR card			
PE 398A	Issues in Drug Study	M-R 8:00-10:05	Marts 203	3
PHYSICS				
PHY101A	Galaxies to Atoms (Fee: $10)	M-R 10:15-**12:20**	SLC 166	3
PHY 105A	Intro. Physics (Fee:$45)	M-R 8:00-10:05	SLC 166	4
PHY 105*A	Laboratory	MW **1:00-4:00**	SLC 149	
POLITICAL SCIENCE				
PS 111A	Intro. to American Politics	M-R 10:15-**12:20**	Kirby 102	3
PSYCHOLOGY				
PSY 101A	General Psychology	M-R 10:15-**12:20**	SLC 347	3
PSY 245A	Clinical Psychology	M-R 10:15-**12:20**	SLC 342	3
	Prereq: PSY 242 and 331			

Course	Description	Time	Room	Credits
PSY 255A	Social Psychology	M-R 8:00-10:05	SLC 347	3
	Prereq: SOC 101, ANT 101, PSY 101 or instructor's consent			
SOCIOLOGY				
SOC 255A	Social Psychology	M-R 8:00-10:05	SLC 347	3
	Prereq: SOC 101, ANT 101, PSY 101 or instructor's consent			
SOC 275A	Sociology of Minorities	M-R 10:15-**12:20**	SLC 320	3
	Prereq: SOC 101, ANT 101 or instructor's consent			

Day Session II
July 13 - August 14

Course	Description	Time	Room	Credits
BUSINESS ADMINISTRATION				
BA 264B	Retail Buying	M-R 10:15-**12:20**	SLC 409	3
	Prereq: BA 261			
BA 271B	Human Resources Management	M-R 8:00-10:05	SLC 409	3
	Prereq: Junior/Senior standing			
CHEMISTRY				
CHM 116B	Chemical Reaction	M-R 10:15-**12:20**	SLC 204	4
	Prereq: CHM 115 (Fee: $40)			
CHM 116*B	Laboratory	TR **1:30-4:15**	SLC 259	
CHM 116B1	Discussion	MW **1:30-2:45**	SLC 204	
CHM 130B	Organic & Biological Chemistry	M-R 10:15-**12:20**	SLC 207	4
	Prereq: CHM 111 or 115 (Fee: $40)			
CHM 130*B	Laboratory	MW **1:00-4:00**	SLC 275	
CHM 232B	Organic Chemistry II	M-F 10:15-11:55	SLC 270	4
	Prereq: CHM 231 (Fee: $40)			
CHM 232*B	Laboratory	MTW **1:15-4:15**	SLC 264	
COMMUNICATIONS				
COM 260B	Basic Newswriting	M-R 8:00-10:05	SLC 320	3
COM 398B	Sportswriting for the Media	M-R 10:15-**12:20**	SLC 320	3
COMPUTER SCIENCE				
CS 115B	Survey of Computers & DP IBM (Fee: $50)	M-F 10:15-**12:05**	SLC 411	3
ENGINEERING				
EE 212B	Circuit Theory II	M-R 10:15-**12:20**	SLC 223	3
	Prereq: EE 211			
EE 252B	Electronics II	M-R 8:00-10:05	SLC 223	3
	Prereq: EE 251			
EGR 284B	Measurement Lab II (Fee: $35)	MR **1:00-4:00**	SLC 23	1

Course	Description	Time	Room	Credits
ME 232B	Strength of Materials Prereq: ME 231	M-R 10:15-**12:20**	SLC 45	3
ENGLISH				
ENG 102B	Composition II Prereq: ENG 101	M-R 8:00-10:05	Kirby 102	3
ENG 153B	American Experience in Literature *Writing Intensive*	M-R 10:15-**12:20**	Kirby 102	3
FOREIGN LANGUAGES				
FR 102B	Elementary French II	M-R 8:00-10:05	Kirby 303	3
FR 204B	Intermediate French II Prereq: FR 203 or two years of high school French	M-R 10:15-**12:20**	Kirby 303	3
GR 102B	Elementary German II	M-R 8:00-10:05	Kirby 309	3
GR 204B	Intermediate German II Prereq: GR 203 or two years of high school German	M-R 10:15-**12:20**	Kirby 309	3
SP 102B	Elementary Spanish II	M-R 8:00-10:05	Kirby 302	3
SP 204B	Intermediate Spanish II Prereq: SP 203 or two years of high school Spanish	M-R 10:15-**12:20**	Kirby 302	3
HISTORY				
HST 101B	World Civilization I	M-R 10:15-**12:20**	SLC 424	3
HST 102B	World Civilization II	M-R 8:00-10:05	SLC 424	3
MATHEMATICS				
MTH 102B	Fundamentals of Mathematics II Prereq: MTH 101	M-F 8:00-9:50	SLC 411	3
MTH 104B	Math for Elementary Teachers II Prereq: MTH 103	M-F 8:00-9:50	SLC 405	3
MTH 106B	Calculus for Life, Managerial, & Social Sciences II Prereq: MTH 105	M-F 10:15-**12:30**	SLC 405	4
NURSING				
NSG 303B	Contemporary Issues in Nursing Prereq: NSG 204	M-R 8:00-10:05	SLC 342	3
PHYSICS				
PHY 102B	Fifth Dimension of Physics: Society (Fee: $10)	M-R 10:15-**12:20**	SLC 147	3
PHY 106B	Intro. Physics (Fee: $45)	M-R 8:00-10:05	SLC 147	4
PHY 106*B	Laboratory	MW **1:00-4:00**	SLC 149	
PSYCHOLOGY				
PSY 232B	Human Behavior Prereq: PSY 101	M-R 10:15-**12:20**	SLC 342	3
SOCIOLOGY				
SOC 101B	Intro. to Sociology	M-R 10:15-**12:20**	SLC 359	3
SOC 230B	Social Problems Prereq: Soc 101, ANT 101 or instructor's consent	M-R 8:00-10:05	SLC 359	3

Evening Session
June 8 - July 30

Course	Description	Time	Room	Credits
ART				
ART 298E	Wheel Throwing	MW **6:00-9:30**	SLC 3	3
BUSINESS ADMINISTRATION				
BA 233E	Legal Environment of Business Prereq: Sophomore standing	MTR **8:00-9:45**	SLC 342	3
COMPUTER SCIENCE				
CS 115E	Survey of Computers & DP IBM (Fee: $50)	MTR **6:00-7:50**	SLC 424	3
CS 123E	Intro. to Fortran Programming (Fee: $50)	MTR **6:00-7:50**	SLC 411	3
CS 124E	Intro. to Cobol Programming (Fee: $50)	MTR **8:00-9:50**	SLC 424	3
DANCE				
DAN 151E	Classical Ballet I	MTR **6:00-7:45**	DDD 2	3
ECONOMICS				
EC 102E	Principles of Economics II Prereq: EC 101	MTR **6:00-7:45**	SLC 342	3
ENGINEERING				
EE 341E	Digital Design Prereq: Junior standing (Fee: $50)	MTR **6:00-7:45**	SLC 45	3
ENGLISH				
ENG 101E	Composition I	MTR **6:00-7:45**	SLC 318	3
ENG 281E	American Literature I Prereq: ENG 102	MTR **6:00-7:45**	SLC 316	3
HISTORY				
HST 396E	Independent Research	TBA		TBA
MATHEMATICS				
MTH 100E	Pre-Calculus Mathematics	M-R **6:00-7:50**	SLC 409	4
MTH 111E	Calculus I Prereq: MTH 100 or 3 years of high school mathematics	M-R **6:00-7:50**	SLC 405	4
MTH 112E	Calculus II Prereq: MTH 111	M-R **6:00-7:50**	SLC 403	4

Course	Description	Time	Room	Credits
MTH 150E	Elementary Statistics	MTR **8:00-9:50**	SLC 409	3
MTH 211E	Intro. to Differential Equations Prereq: MTH 112	M-R **8:00-9:50**	SLC 405	4
MTH 212E	Multivariable Calculus Prereq: MTH 112	M-R **8:00-9:50**	SLC 403	4
MTH 398E	Topics: TBA Contact Math Department for more information	TBA	TBA	3
PHYSICAL EDUCATION				
PE 210E	Contemporary Health Concepts	MTR **6:00-7:45**	Marts 117	2
PHYSICS				
PHY 203E	General Physics III Prereq: PHY 202	MTR **6:00-7:45**	SLC 147	3
PHY 221E	Electronic Instrumentation Prereq: PHY 106, 202, or junior standing (Fee: $40)	M **8:00-9:45**	SLC 147	3
PHY 221*E	Laboratory	TR **8:00-10:45**	SLC 23	
POLITICAL SCIENCE				
PS 141E	Intro. to International Politics	MTR **6:00-7:45**	SLC 207	3
PSYCHOLOGY				
PSY 242E	Psychological Tests Prereq: PSY 101	MTR **6:00-7:45**	SLC 347	3
PSY 243E	Industrial Psychology Prereq: PSY 101	MTR **8:00-9:45**	SLC 347	3

Wilkes Weekend Program
at Keystone Junior College

Early Registration - Friday, March 20th, 4:30 p.m. to 6:30 p.m.
Saturday, March 21st, 10:00 a.m. to 5:00 p.m.
Final Registration - Friday, May 8th, 4:30 p.m. to 6:30 p.m.

Course	Description	Credits
Schedule A		
PSY 245W	Clinical Psychology Prereq: PSY 242 and 331	3
ENG 151W	Western World Literature I Prereq: ENG 102	3
EC 201W	Money & Banking	3
EES 130W	Environmental Awareness (Fee: $40)	3
Schedule B		
ACC 244W	Advanced Financial Accounting Prereq: ACC 212	3
COM 206W	Business & Professional Speaking	3
SOC 275W	Sociology of Minorities Prereq: SOC 101, ANT 101 or instructor's consent	3
PHL 150W	Critical Thinking	3
BA 352W	Operations & Systems Management Prereq: BA 351	3
Schedule C		
BA 222W	Marketing	3
NSG 200W	Principles of Normal Nutrition Prereq: CHM 130 and NSG 201	3
SOC 370W	Methods of Research in Sociology Prereq: SOC 101 or instructor's consent	3
ACC 398W	Governmental & Non-Profit Accounting	3
EC 241W	Microeconomics I Prereq: EC 102	3

Schedule A
Friday 6:30 p.m. to 8:30 p.m.
Saturday 10:10 a.m. to 12:10 p.m.
Saturday 3:10 p.m. to 5:10 p.m.
Schedule B
Saturday 8:00 a.m. to 10:00 a.m.
Saturday 1:00 p.m. to 3:00 p.m.
Sunday 10:10 a.m. to 12:10 p.m.
Schedule C
Saturday 6:00 p.m. to 8:00 p.m.
Sunday 8:00 a.m. to 10:00 a.m.
Sunday 1:00 p.m. to 3:00 p.m.

Summer Trimester Dates

May 8, 9, 10
May 29, 30, 31
June 19, 20, 21
July 10, 11, 12
July 24, 25, 26
August 14, 15, 16

GRADUATE COURSE OFFERINGS
June 8 - July 30

Course	Description	Time	Room	Credits
	School of Business, Society and Public Policy			
BUSINESS ADMINISTRATION				
BA 508E	Management Infromation Systems Prereq: CS 115	TR **6:00-8:45**	SLC 334	3
BA 521E	Organizational Theory Prereq: ACC 501	MW **6:00-8:45**	SLC 334	3
BA 550E1	Managing Quality Assurance	TR **6:00-8:45**	SLC 270	3
BA 550E2	Managing Change Through Values	MW **6:00-8:45**	SLC 270	3
BA 559E	Estate Planning	MW **6:00-8:45**	SLC 380	3
HEALTH SERVICES ADMINISTRATION				
HSA 554E	Medical Sociology	TR **6:00-8:45**	SLC 160	3
HSA 560E	Managing Change Through Values	MW **6:00-8:45**	SLC 160	3
HSA 577E	Principles of Epidemiology	F **6:00-8:45** S 9:00-**4:00**	SLC 334 SLC 334	3
HSA 590E	Graduate Internship	TBA		TBA
HSA 595E	Health Services Independent Study	TBA		TBA

WEEKEND MBA PROGRAM AT WILKES UNIVERSITY

BA 502W	Management Science	S **2:00-6:00** U **1:00-5:00**	SLC 316	3
BA 515W	Marketing Management Seminar	S **2:00-6:00** U **1:00-5:00**	SLC 318	3
BA 552W	Financial Management	S 9:00-**1:00** U 8:00-**12:00**	SLC 316	3
EC 505W	Managerial Statistics	S 9:00-**1:00** U 8:00-**12:00**	SLC 318	3

Summer Trimester Dates

April 25, 26
May 16, 17
June 6, 7
June 27, 28
July 18, 19

Finals - Under normal circumstances, finals for weekend classes will be given on the weekend two weeks after the fifth weekend of classes. The morning classes will hold their final exams on Saturday 9:00 a.m. to 12:00 noon, and the afternoon classes will hold their final exams on Sunday 9:00 a.m. to 12:00 noon.

Course	Description	Time	Room	Credits
	School of Liberal Arts and Human Sciences			
EDUCATION				
Special Summer Session I - June 22 through July 9				
ED 510A	Psychological Foundations of Education	M-R 8:00-11:30	SLC 380	3
ED 514A	Historical Foundations of Education	M-R 8:00-11:30	SLC 1	3
ED 514B	Historical Foundations	M-R **12:30-4:00**	SLC 380	3
ED 514B1	Historical Foundations	M-R **12:30-4:00**	SLC 1	3
ED 520A	Tests & Measurements	M-R 8:00-11:30	SLC 207	3
ED 520B	Tests & Measurements	M-R **12:30-4:00**	SLC 318	3
ED 534B	Elementary School Curriculum	M-R **12:30-4:00**	SLC 207	3
ED 541B	Secondary School Curriculum	M-R **12:30-4:00**	SLC 316	3
ED 578A	School Law	M-R 8:00-11:30	SLC 318	3
Special Summer Session II - July 20 through August 6				
ED 510C	Psychological Foundations	M-R 8:00-11:30	SLC 380	3
ED 510D	Psychological Foundations	M-R **12:30-4:00**	SLC 380	3
ED 514C	Historical Foundations	M-R 8:00-11:30	SLC 318	3
ED 520C	Tests & Measurements	M-R 8:00-11:30	SLC 316	3
ED 534D	Elementary School Curriculum	M-R **12:30-4:00**	SLC 316	3
ED 541D	Secondary School Curriculum	M-R **12:30-4:00**	SLC 318	3
ED 598C	Cooperative Learning	M-R 8:00-11:30	SLC 347	3
PLS Courses				
ED 550	Project T.E.A.C.H. July 27 through 31	8:00-**5:00**	SLC 334	3
ED 551	P.R.I.D.E. June 29 through July 3	8:00-**5:00**	SLC 334	3
ED 552	Teaching thru Learning Channels July 13 through 17	8:00-**5:00**	SLC 334	3
ED 553	Patterns for I.D.E.A.S. June 18, 19, 22, 23, 24	8:00-**5:00**	SLC 334	3
NURSING				
NSG 504E	Advanced Role Development in Nursing** Prereq: NSG 511 (***Please note: Class will be held from May 18 until June 24th.)	MWF **6:00-9:00**	SLC 359	3
HSA 560E	Managing Change Through Values	MW **6:00-8:45**	SLC 160	3
	School of Science and Engineering			
ELECTRICAL ENGINEERING				
EE 410E	Linear System Theory Prereq: EE 214	MTR **6:00-7:45**	SLC 223	3
MATHEMATICS				
MTH 398/498E	Topics: TBA Contact Math Department for more information	TBA	TBA	3

Wilkes University for Kids!

Field trips and hands on activities make every class an adventure!

These courses are designed to sharpen a young person's awareness of the world, develop his or her thinking abilities and leadership skills, and assist them in learning their civic responsibilities.

Courses offered are as follows:

Fun with Science	7-9 years old
Fun with Science	9-11 years old
Aristocrafts	7-11 years old
Acting: Just for Kids	8-12 years old
Water Color	6-10 years old
Understanding the Stock Market	11-16 years old
Time Travel: The Boston Tea Party	10-13 years old
Photography	10-13 years old
Exploring the Environment	9-12 years old

For more information, please contact:

Graduate Affairs & Continuing Education Office
Max Roth Center
Wilkes University
Wilkes Barre, PA 18766
(717) 824-4651, extension 4462

Learning is Fun!

encore

MUSIC CAMP OF PENNSYLVANIA
Wilkes University Wilkes-Barre, PA 18766

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- *17 performing groups to match and challenge all students*
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- *16 academic classes provide individualized instruction*
- *Theater productions twice each summer*
- *Professionally staffed dance program*
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- *Everyone performs every week*

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Northeastern Pennsylvania Writing Project Summer Institute 1992

Who?

Experienced, successful teachers of all subjects teaching full time in public and private schools on elementary, secondary, and college levels are eligible for selection to the institute.

When?

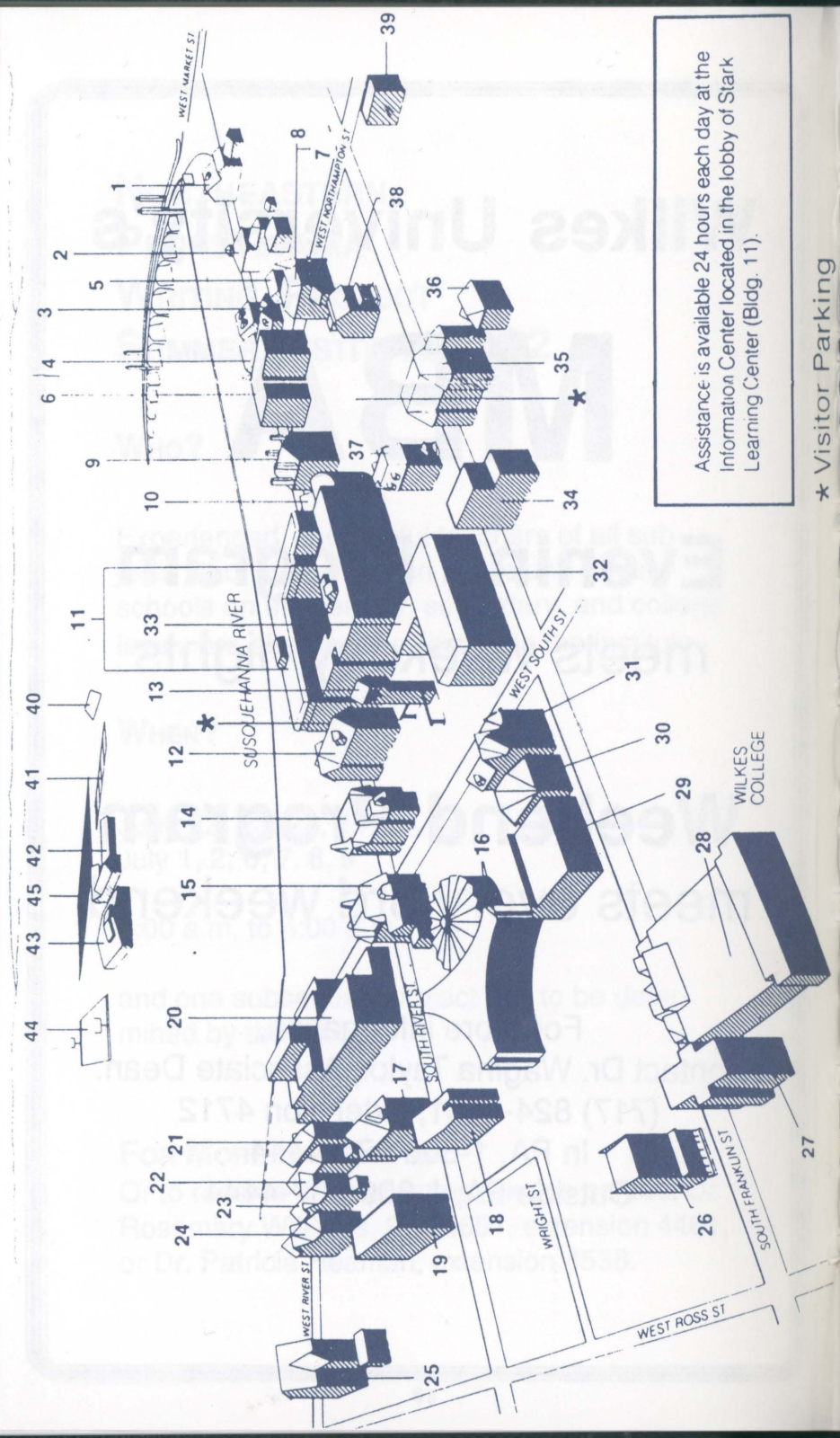
June 22, 23, 24, 25, 29, 30
July 1, 2, 6, 7, 8, 9

9:00 a.m. to 4:00 p.m.

and one subsequent project day to be determined by the group

For More Information:

Or to receive an application, please contact Dr. Rosemary Williams, 824-4651, extension 4461, or Dr. Patricia Heaman, extension 4538.

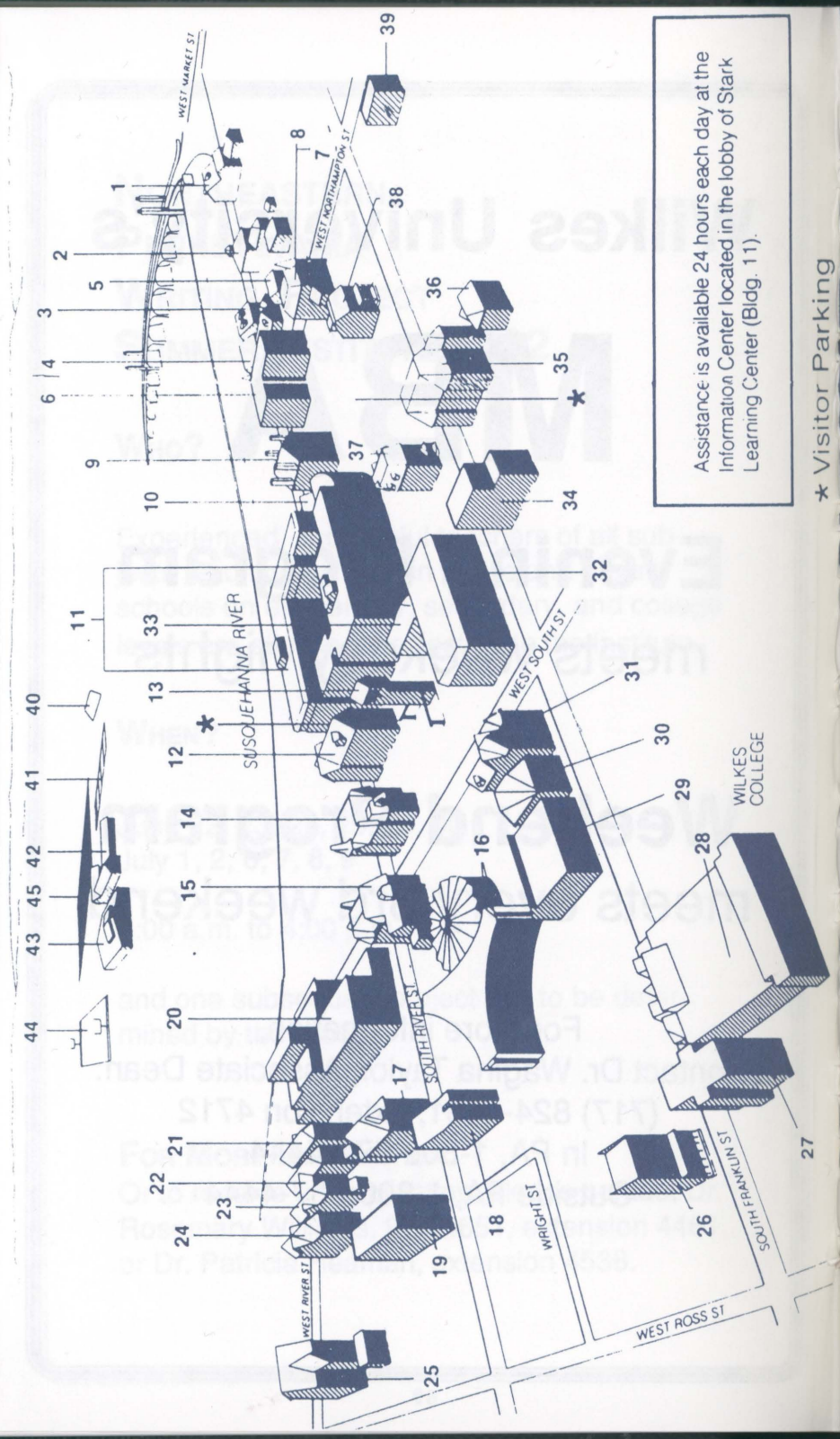


Assistance is available 24 hours each day at the Information Center located in the lobby of Stark Learning Center (Bldg. 11).

* Visitor Parking

KEY

1. **McClintock Hall**, 44 S. River St.
2. **Sterling Hall**, 72 S. River St.
3. **Catlin Hall**, 92 S. River St.
4. **Weiss Hall**, 98 S. River St.
5. **Maintenance Office**, R. 98 S. River St.
6. **William L. Evans Hall**, 110 S. River St. (P)
7. **Chesapeake Hall**, 68-70 W. Northampton St.
8. **Delaware Hall**, 72-74 W. Northampton St.
9. **Conyngham Student Center**
10. **Annette Evans Alumni & Faculty House**, 146 S. River St.
11. **Stark Learning Center**, 150-180 S. River St.
12. **Chase Hall**, 184 S. River St. (P)
13. **Burns Alumni Bell Tower & Carrilion**
14. **Kirby Hall**, 202 S. River St.
15. **Bedford Hall**, 96 W. South St. (P)
16. **Pickering Hall & College Dining Hall**, Wright St. (P)
17. **Ross Hall**, 251 S. River St.
18. **Slocum Hall**, 262-264 S. River St.
19. **Sullivan Hall**, 271-273 S. River St.
20. **Darte Center for the Performing Arts**, South & River Sts.
21. **President's Residence**, 30 W. River St.
22. **Waller Hall North**, 36 W. River St.
23. **Waller Hall South**, 40 West River Street
24. **Doane Hall**, 56 W. River St.
25. **Barre Hall**, 80 W. River Street
26. **Dennison Hall**, 285-287 S. Franklin St.
27. 280 S. Franklin St.
28. **Arnaud C. Marts Center**, 274 S. Franklin St.
29. **Fortinsky Hall**, 225-227 S. Franklin St.
30. **Nursing Building**, 219 S. Franklin St.
31. **Max Roth Center**, 215 S. Franklin St.
32. **Eugene S. Farley Library**, S. Franklin & W. South Sts.
33. **Church Hall**, 187 S. Franklin St.
34. **Hollenback Hall**, 192 S. Franklin St.
35. **Weckesser Hall**, 170 S. Franklin St. (P)
36. **Weckesser Annex**, R. 170 S. Franklin St.
37. **Capin Hall**, 165 S. Franklin St. (P)
38. **Sturdevant Hall**, 129-131 S. Franklin St. (P)
39. **Miner Hall** (YMCA)
40. **Baseball Field** (P)
41. **Tennis Courts** (P)
42. **Field House**
43. **McBride Fieldhouse** (P)
44. **Ralston Field**
45. **Ralston Field Parking Area**



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35. **Weckesser Hall**, 170 S. Franklin St. (P)
36. **Weckesser Annex**, R. 170 S. Franklin St.
37. **Capin Hall**, 165 S. Franklin St. (P)
38. **Sturdevant Hall**, 129-131 S. Franklin St. (P)
39. **Miner Hall** (YMCA)
40. **Baseball Field** (P)
41. **Tennis Courts** (P)
42. **Field House**
43. **McBride Fieldhouse** (P)
44. **Ralston Field**
45. **Ralston Field Parking Area**

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