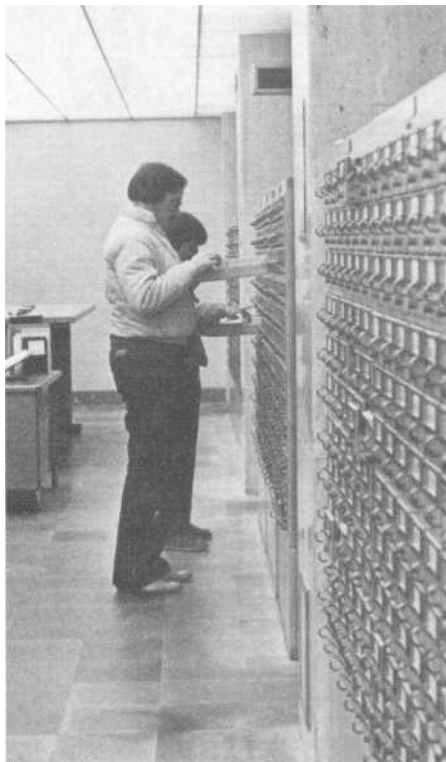


College of Arts and Sciences

Smith L. Holt, Ph.D., *Dean*
 Neil J. Hackett, Ph.D., *Associate Dean*
 Mary Rohrberger, Ph.D., *Director of Curricular Affairs and Academic Programs*
 Stanley D. Green, M.M., *Director of Extension*
 Ann Schneider, Ph.D., *Director of Research*
 William Ivy, Ph.D., *Director of Student Academic Services*



The College of Arts and Sciences not only offers within itself a wide variety of programs in teaching, research and extension, but also underpins and reinforces all the other programs of the University as a whole.

Apart from strong programs in the basic natural and social sciences and in the liberal and fine arts, the College provides a number of more specialized and interdisciplinary strengths, and a variety of professional and preprofessional training. Its 30 academic units, of which 25 operate as departments and five are grouped in two schools (Health, Physical Education and Leisure; and Journalism and Broadcasting) offer more than 75 degree programs at the bachelor's level, and in conjunction with the Graduate College, 23 master's and 14 doctoral degrees.

The Department of Economics, which belongs administratively to the College of Business Administration, offers B.A. and B.S. degrees through the College of Arts and Sciences. The Department of Biochemistry, which belongs administratively to the College of Agriculture, offers the B.S. through the College of Arts and Sciences.

Freshmen who are not yet certain of their career or educational goals can enroll without declaring a major in the College of Arts and Sciences and make satisfactory progress toward most degrees, without wasting time or credits, for as many as three (or even four) semesters before they select their major fields of study. Under the careful advising of the Office of Student Academic Services, they can explore possible specializations or combinations of subjects as they complete necessary basic courses.

The College of Arts and Sciences provides academic training and background for a wide variety of professions including: law, medicine, social work, nursing, optometry, veterinary medicine, graphic arts, teaching, writing, foreign service, urban and regional planning, journalism, public service, radio/TV, advertising, public relations, medical technology, military science, public affairs, corrections, child services, interpersonal communications, and fine and performing arts.

Accreditation

Refer to appropriate pages under departmental listings for information on accreditation of specific programs.

High School Preparation

Although no one pattern of course work is required in high school as preparation for enrollment in the College of Arts and Sciences, it is strongly *recommended* that high school students have: four units of English; three units of mathematics; three units of science; three units of social studies including American history, world history, and one-half unit of Oklahoma history; two units of foreign language; one unit of arts such as music, theater, painting.

Credit by Advanced Standing Examination

Entering freshmen who believe that they can demonstrate sufficient mastery of a subject to earn advanced standing credit should write to the Office of Admissions for a schedule of advanced standing examinations. The most popular examinations are in foreign languages, English, mathematics and American history and government.

Scholarships

A number of undergraduate scholarships are available through the College and through the departments and schools within the College. Interested students should inquire in the Office of Student Academic Services for a list of available scholarships. Arts and Sciences students are also encouraged to apply for the variety of scholarships available through the general University which are listed in the "Financial Aid" section of the *Catalog*.

Academic Advising

The Office of Student Academic Services. The academic advising process in Arts and Sciences is coordinated by the Office of Student Academic Services. The counseling staff in Student Academic Services advises freshman, undecided and pre-health profession students. Departmental advisers provide advising for students who have declared their majors and are pursuing one of the more than 75 degree options available in the College.

The Student Academic Services staff also represents the College in the University's on-campus recruiting activities and represents the dean in such matters as petitions for extension and correspondence, change of major or college, and student withdrawals. Services also include graduate certification, information about college programs and requirements, and referral of A&S students to campus support services.

The "Undecided" Student. The general education program in the College of Arts and Sciences, while providing the breadth necessary for a quality undergraduate education, also makes it possible for freshmen who enroll without having decided on a major field of study to make satisfactory progress toward most degrees for up to four semesters. Students who initially enroll as undecided students may explore possible major fields of study with an academic counselor in the Office of Student Academic Services while completing required basic courses.

Responsibility and Assistance. The responsibility for satisfying all requirements for a degree, and for ensuring that a degree plan has been endorsed, rests with the student. Advisers assist students in curriculum planning, and students are encouraged to consult fully with their advisers and not restrict their visits to the pre-enrollment periods when only brief encounters may be possible.

Academic Programs

Graduate Work

Master's degrees are offered in most undergraduate subjects, with doctor's degrees available in many. (For details, see the departmental entries below or consult the "Graduate College" section in the *Catalog*.)

Baccalaureate Degrees Offered

Requirements for all degree programs and options are detailed in the book *Undergraduate Programs and Requirements*, available in all Oklahoma colleges and high schools. Separate sheets, stating the requirements for any particular degree, may be obtained by application to the department or college in which the degree is offered.

Bachelor of Arts (B.A.): art, economics, English, French, geography, German, history, mathematics, music, philosophy, political science, psychology, radio-TV-film (production and performance), religious studies, sociology (anthropology

and applied sociology), Spanish, speech (communication consultancy), and theater.

Bachelor of Science (B.S.): aerospace studies, biochemistry, biological sciences (biomedical and ecology), botany, chemistry, computing and information science, economics, geography, geology, health education, journalism (advertising, news-editorial, photojournalism, public relations), mathematics, medical technology, microbiology, military science, physical education with teaching certificate, physics, physiology, political science (public affairs, international public administration, public law and legal systems, and para-legal), psychology, radio-TV-film (news and public affairs, and sales and management), recreation, sociology, (anthropology and applied sociology), speech (communication consultancy), speech pathology, statistics, theater, wildlife ecology (communication, fisheries, and management/research), and zoology.

Bachelor of Fine Arts (B.F.A.): art (graphic design and studio).

Bachelor of Music (S.M.): music (elective studies in business and performance); music education (instrumental/vocal certification).

Second Bachelor's Degree. To secure a second bachelor's degree, a student must complete a *minimum* of 30 semester credit hours in addition to those required for the first degree. The number actually needed depends on what a student must do to satisfy all the requirements for the second degree.

A student seeking a second degree in the College of Arts and Sciences at OSU should ask his or her second adviser to submit a degree plan for the second degree, clearly headed "second of two degrees," and showing how *all* the requirements of the second degree are to be satisfied. The plan should also state the major, date of award and total credit hours of the first degree, and indicate those courses which represent the minimum of 30 additional hours. The second degree plan should be sent to the College of Arts and Sciences Office of Student Academic Services within two weeks after the student's last pre-enrollment.

Students wishing to complete degrees in two different colleges at OSU should consult with the offices of student academic services of both. Concurrent enrollment in two colleges is possible, but a student must be enrolled in a college for at least two semesters before becoming eligible for a degree from that college.

Second Majors and Minors. If a student majoring in one field also completes the specified requirements for a "major" or a "minor" in other fields, the additional majors or minors may be noted on the student's transcript. Such specified requirements may be obtained from the student's own adviser or from the department in which the additional notation is sought. The student should, at the end of his or her senior year, ask the department head in the field of additional study to submit the request to the Office of Student Academic Services in the College of Arts and Sciences.

Special Academic Programs

Honors Program

The A&S Honors Program provides academically talented students a chance to study, research



and exchange ideas within a supportive community. Its purpose is to broaden the students' general university education through innovative academic experiences. The A&S Honors Program offers students the advantages of small classes as well as the excellent facilities and distinguished faculty of a large state university. The setting of the Honors Program, with an informal work space for the staff and for the students, fosters an atmosphere of cooperation and friendliness. It's easy to become involved in the Program and to find a place at the University.

Academic participation in the A&S Honors Program is flexible and varied. Interdisciplinary Honors Seminars are offered each semester which introduce students to the seminar approach to learning. Regular classes in nearly all the academic disciplines—mathematical sciences, natural sciences, and humanities and the social sciences—often have honors sections. These honors sections allow Honors students to fulfill their university General Education requirements in small, enriched classes taught by the most sought-after faculty members. In addition, advanced Honors students have the option of applying for the Honors Research Practicum. Successful applicants enjoy the opportunity of serving as research assistants in a one-on-one relationship with distinguished faculty actively engaged in advancing the knowledge of their particular fields. The Research Practicum is available for nearly all fields of study found in the College of Arts and Sciences. Students who complete the Research Practicum will have amassed useful experiences beneficial to graduate careers or the world of work.

Bachelor of University Studies

For the student who has an academic objective which cannot be fulfilled by any of the regular degree programs, an individual plan of study fitted to the particular needs of the student may be devised with the approval of the student's adviser, dean and the Office of the Vice-president for Academic Affairs and Research.

Area Studies Certificates

While completing requirements for a degree, and usually without increasing the total number of credit hours required, students may also earn the following Area Studies Certificates.

International studies. Area studies programs on Russia and Eastern Europe, Latin America, Africa and Asia are available. These 23-credit-hour programs (including five hours of a specific foreign language at the sophomore level) enable an

undergraduate student to pursue an interdisciplinary and integrated curriculum leading to a certificate in a particular regional culture while majoring in a department of his or her choice, and thus acquire knowledge of a regional civilization while developing disciplinary expertise. Area study can provide a background and basis for specialized graduate study and research within a discipline or it can prepare a student for professional service abroad.

A certificate in Ancient and Medieval Studies is also available as well as a certificate in Native American Studies.

Further information on all Area Studies Certificates may be obtained from the Office of the Dean of the College of Arts and Sciences.

High School Teaching Preparation

Students earning degrees in the College of Arts and Sciences may, by completing certain qualifying courses, receive state licensure for teaching in the secondary schools. Some programs, e.g. in physical education, cover grades K-12. Full details may be obtained from departmental advisers or from the Office of Teacher Education in the College of Education.

Students who wish to qualify for teaching licensure should consult as early as possible with the adviser in their fields of interest, and should apply for admission to teacher education as soon as possible, and preferably before the end of their sophomore year.

It is usually possible to qualify for teaching licensure and the bachelor's degree within the 127 semester credit hours required for graduation. When it is not possible, students may meet the requirements for the degree and then complete the licensure requirements by taking additional courses in a summer session or, in some cases, by correspondence.

Full teaching certification is awarded by the State Department of Education when the licensed candidate has successfully completed a period of teaching in a school system.

Preprofessional Programs in the Health Professions

Pre-dentistry, Premedicine, Pre-osteopathic Medicine, and Pre-veterinary Medicine. (See also "Pre-veterinary options" in the "College of Agriculture" section.) The preprofessional curriculum for medical doctors, dentists veterinarians, optometrists and osteopaths have the same basic core because they must prepare students for professional schools whose admission requirements are almost identical. These include a strong foundation in chemistry, biology and physics, the disciplines on which major advances in the health field depend. Included also are courses to develop written and spoken communication skills, which are highly important for a good relationship with patients, the public and other professionals.

Beyond this required core, preprofessional students may choose courses and a major as freely as any other students in the College of Arts and Sciences. Most students concentrate on some aspect of biology or chemistry, but other subject areas are not only acceptable but welcomed. Medical schools encourage study in the social sciences and humanities that contribute to the understanding of human beings in their entirety—their history and environment, their attitudes and values, their emotions, motivations, interpersonal relationships and cultural heritage. All of these may affect sickness and health.

Although most students entering a professional school in one of the above fields have a bachelor's degree, it is possible to apply for admission after three years of college work (two years for a few dental and veterinary schools). OSU permits preprofessional (health-related) students to choose between two alternative bachelor's degree programs: (1) in a specific discipline that requires a minimum of 127 semester credit hours at OSU, or (2) in physiology, a degree program which allows a "3 plus 1" approach, requiring at least 97 semester credit hours at OSU and 30 hours to be transferred from a medical, osteopathic, dental or veterinary school after successful completion of the first year.

Some professional schools do not state a firm minimum grade-point average for admission, but a student should maintain better than a 3.00 grade-point average to be competitive. The specific admission requirements of medical, dental and veterinary schools are compiled in catalogs available in the offices of each preprofessional adviser and in the Office of Student Academic Services. The OSU pre-veterinary course requirements are listed under "Pre-veterinary Medicine Curriculum" in the "College of Agriculture" section.

All applicants for medical schools must take the Medical College Admissions Test (MCAT) and dental applicants must take the Dental Admission Test (DAT) prior to admission. The OSU College of Veterinary Medicine requires the School and College Ability Test (SCAT) and the aptitude test of the Graduate Record Examination (GRE).

Allied Health Professions

The allied health professions for which one can prepare at Oklahoma State University include dental hygiene, nursing, occupational therapy, optometry, pharmacy, physical therapy, physician's associate, radiologic technology, corrective therapy and athletic training. Each of these programs requires that the final phase of the education and degree program (usually two to three years) be completed elsewhere in a professional program. The College of Arts and Sciences offers the general education and basic science courses which one must complete before he or she can be accepted into a professional program. Students whose goal is admission to a professional program in the allied health professions should seek consultation with the senior academic counselor-coordinator of health professions advising for information regarding the specific requirements of particular programs and schools.

Medical Technology: See "Department of Botany and Microbiology."

Pre-law Program

Law schools have no preference for a specific undergraduate major. Admission to law school is normally based upon a strong record achieved in a rigorous undergraduate program and an acceptable score on the Law School Admission Test (LSAT).

Law school admissions officers most frequently recommend that students include in their undergraduate programs courses in economics, literature and languages, psychology, history and government, mathematics, logic, philosophy, accounting and speech. Courses in these areas are especially helpful as one seeks to develop the verbal and analytical abilities which are particularly critical for success in law school.

Pre-law students may select courses in consultation with a pre-law adviser in the Office of Stu-

dent Academic Services until such time as they choose a particular degree program.

Library Science

Students who wish sound undergraduate preparation for admission to an accredited graduate library school should consult the adviser in the preprofessional program for librarians (Library, Room 510) concerning lower-division courses and the selection of an appropriate major field. Special aptitudes and interests are important in the selection of a specialization in librarianships. For general librarianship in public libraries, a humanities-related major is strongly advised, but specialists such as law or information-retrieval librarians are better served by undergraduate majors in social sciences or mathematics.

In the upper-division program, along with the required number of courses in the chosen Field of Concentration, students should take from 12 to 15 credit hours of basic library courses, including those usually required as prerequisites for the master's degree in library science. At least one modern foreign language is usually required, and a broad general background emphasizing the current literature of as many fields as possible is desirable. Students will receive individual attention to prepare them for the type of librarianship they prefer and for the graduate school of their choice.

Early admission to the preprofessional program will make it possible to avoid delay and to obtain a master's degree in as little time as two semesters.

Requirements

General Education Requirements. The General Education Requirements for the degrees offered by the College are shown for each program in *Undergraduate Programs and Requirements*. They total 40 credit hours for the B.S. and B.A. degrees.

All degrees include a common core of 12 credit hours. *Three credit hours of American history and three hours of American government* are required. These must be satisfied by HIST 1103 or 1483 or 1493 and POLSC 1013. *Six credit hours of English composition* is a University requirement, and this must be satisfied by English 1113 or 1213 and 1323 or 1413. Students who obtain a grade of "A" or "B" in ENGL 1113 may substitute ENGL 3323 for ENGL 1323. (See also "English Proficiency Examination," below.)

The remaining 28 credit hours must be distributed as follows: six credit hours of social sciences, six hours of humanities, eight hours of natural sciences, three hours of abstract and quantitative thought, three hours of communication systems, and one hour of elective.

College Requirements. In addition to the 40 hours of general education, the college requires one credit hour of orientation, A&S 1111, for both the B.A. and the B.S. degrees. For the B.S., nine additional hours of natural or mathematical sciences are required, as well as three additional hours from the humanities or arts. For the B.A., nine additional hours of humanities or arts are required, as well as three additional hours of natural or mathematical sciences. College requirements define the type of Arts and Sciences degree.

Foreign Language Proficiency Requirement. For the B.A., the foreign language requirement is 10 credit hours in one foreign language. Five hours in one language and five in another do not satisfy the requirement. The ten hours represent the first

year of work in the language in college and are roughly equivalent to two years of work in high school. The courses are normally 1115 and 1225. Proof of equivalent proficiency must be recorded on the student's transcript, by either advanced standing credit or completion of a second year course or above in the language. FRNCH and GRMN 3013, 3023, FRNCH and SPAN 4113, RUSS 3123, 4113, and 4223 do not satisfy this requirement.

For the B.S. degree, proficiency in a foreign language may be demonstrated by a high school transcript showing two years of high school study in a single foreign language or by college or advanced standing credit showing completion of one year of college study or a higher level course.

Non-Western Requirement (B.A. and B.F.A. only). One three-hour course of Non-Western studies from: (Social Sciences) GEOG 3363; HIST 3403, 3413, 3423, 3433; POLSC 3213, 3223, 3253, 3313; (Humanities) ART 3633, 4643; ENGL 4453; HIST 4613; IDS 3103, 3503, 4113; PHILO, 3943; REL 3413, 3533; second year work or above in Chinese or Japanese language or culture; A&S 3500 (African or Asian Area Studies Colloquium).

International Dimension Requirement (all degrees). Three hours of credit in courses which foster understanding of, or the ability to communicate with, peoples and cultures of other countries. Courses satisfying this requirement are designated "I" in the *Catalog* and a list is available from any adviser or from the Office of the Dean of Arts and Sciences.

Scientific Investigation Requirement (all degrees). One course including an investigative laboratory giving experience with scientific method. Courses satisfying this requirement are designated "L" in the *Catalog* and a list is available from any adviser or from the Office of the Dean of Arts and Sciences.

The Non-Western, International Dimension, and Scientific Investigation requirements may be satisfied by courses used also to satisfy any other part of a student's degree program (i.e., in General Education, Departmental, Field of Concentration, or Electives requirements). No additional hours are required.

Additional College Requirements. For both the B.S. and the B.A., six hours of general education or college requirements are to be taken at the 3000 level or above and 12 hours of college Enhanced Discussion/Writing Component (ENDWC) courses are to be included in a student's plan of study. A list of current college ENDWC courses may be obtained from any Arts and Sciences adviser or the Office of Student Academic Services.

The English Proficiency Examination. All candidates for a bachelor's degree must, unless they secure exemption, pass the University English Proficiency Examination. See "University Academic Regulations."

Mathematics Proficiency Requirement. All candidates for a bachelor's degree must pass the Arts and Sciences Mathematics Proficiency Examination or satisfy one of the following conditions:

1. Receive a grade of "A" or "B" in MATH 1314, 1513, 1613, or 1715; or
2. Receive advanced standing credit for any one of the courses listed in number (1) above; or
3. Receive a grade of "C" or better in any calculus course, that is, MATH 2265, 2365, 2373, 2383, 2713.

Students are required to pass the Arts and Sciences Mathematics Proficiency Examination prior to filing a diploma application and are encouraged to take the examination toward the end of their junior year. The examination is administered, by appointment, to individual students by the Bureau of Tests and Measurements. A small fee will be charged for the administration and grading of the examination. Students who fail the examination will be required to take it again until they have demonstrated proficiency.

Field of Concentration. At least 40 semester credit hours of advanced work as specified by the department, including courses in the major and in supporting fields, must be completed. These 40 hours of advanced work constitute the student's Field of Concentration.

Upper-division Credit. A student must successfully complete at least 50 semester hours of upper-division credit, i.e. credit in courses at the 3000 or 4000 level.

(These 50 hours will normally, but not necessarily, be listed in *Undergraduate Programs and Requirements* under "Field of Concentration.")

Hours in One Prefix. If a student seeking a B.A. or B.S. degree takes more than 42 semester credit hours in one subject, including both lower-division and upper-division credit, the hours in excess of 42 will be added to the minimum total of 127 hours required by the College for a bachelor's degree. For example, if a department were to require 46 hours in one subject for a B.S. degree, the minimum requirement for a B.S. degree in that subject would be 131 hours. If a candidate for a B.A. in French has 46 hours of credit in French on his or her transcript, he or she must complete a total of 131 hours in order to graduate, instead of the stated total of 127.

This "42 hour maximum" applies to all courses taken in a subject, whether they are required or elective, with the exception of required courses in English composition and American history and government.

Total Semester Credit Hours and Grade-point Average. The minimum number of semester credit hours for graduation is 127. The minimum grade-point average is 2.00. The 2.00 average must be earned overall, in all courses in the major subject and in the Field of Concentration.

Particular degree programs may specify higher grade-point requirements or exceed the 127 hours total. Details are given in *Undergraduate Programs and Requirements*.

Native Speaker Policy. It is the policy of the College of Arts and Sciences that native speakers of any foreign language (those whose language of instruction in high school was the language in question) may not normally be permitted to enroll in or establish credit in courses in that language at the 1000 or 2000 level. There are no restrictions on higher level courses. Exceptions resulting from degree requirements may be determined by interview with the head of the Department of Foreign Languages and Literatures and the appropriate language section chairman.

Endorsement of Student's Plan (Graduation Check). Immediately after their last pre-enrollment, before their last semester, students must check with their advisers to ascertain that a degree plan has been sent to the Arts and Sciences Office of Student Academic Services.

Changes in Degree Plan. Once a degree plan has been submitted, a student will not graduate until all requirements on it have been fulfilled. Any



deviation in the plan must be recommended by the adviser on a "Change in Plan of Study" card, and sent to the Arts and Sciences Office of Student Academic Services for approval.

Checklist of Graduation Requirements.

- Total hours.** Minimum 127 (see degree sheet). Hours of "F" or "I," or for repeated courses unless officially approved in course descriptions in the *Catalog*, do not count. English 0103 (offered only at the OSU Technical Branch, Oklahoma City) is a non-credit course. MATH 1113 is not applicable to a degree. Students must ascertain that grade reports for the removal of "I's" have been sent to the Office of the Registrar by the instructor who gave the
- Grade-point average.** See individual degree sheets for all grade-point minima, overall, in major, in concentration, in professional courses, and in student-teaching.
- Validity of credits.**
 - No more than two courses in any one subject or (8 hours in biological science) may be used to satisfy the requirements in any area of General Education.
 - A course used in the Field of Concentration may not be used to satisfy any other degree requirement.
 - Pass-no pass Grading System. Courses taken on this campus under the Pass-no pass Grading System (see "University Academic Regulations") may be used only as elective hours. They cannot satisfy any other requirement (General Education, Departmental, Field of Concentration, certification).
- Regulations governing resident and transfer credit must be satisfied. Transfer credit with a grade-point average below 2.00 can be used toward graduation only if a GPA of 2.00 is earned at OSU at the time of graduation. (See "University Academic Regulations")
- All degree requirements listed above and specified in "University Academic Regulations" and *Undergraduate Programs and Requirements* must be satisfied.
- Exemption.** A student who believes that he or she has a valid reason for exemption from a College requirement should file with the Office of Student Academic Services a written request which has been approved by his or her adviser. Although general and departmental requirements apply to transfer students, all or most of their previous work may be acceptable as substitutions. Students should consult their advisers.

Departmental Clubs and Honor Societies

Advertising Club
 Alpha Epsilon Delta (honorary premedical)
 Alpha Epsilon Rho (broadcasting)
 Alpha Kappa Delta (sociology)
 American Association of Petroleum Geologists
 American Chemical Society
 American Guild of Organists
 Angel Flight
 Anthropology Club
 Arnold Air Society
 Army Blades
 Artisans
 Arts & Sciences Student Council
 Association for Computing Machinery
 Biology Club
 Chinese Club
 HPER Club
 French Club
 Friends of the Forms (philosophy)
 Gamma Theta Upsilon (geography)
 Geological Society
 German Club
 Japanese Club
 Kappa Kappa Psi (band)
 Pershing Rifles
 Scabbard & Blade
 Phi Alpha Theta (honorary history)
 Phi Kappa Phi (biochemistry or chemistry)
 Phi Lambda Upsilon (chemistry)
 Pi Mu Epsilon (mathematics)
 Pi Sigma Alpha (political science)
 Political Science Club
 Psi Chi (psychology)
 Public Relations Student Society of America
 Russian Club
 Sigma Tau Delta (English)
 Spanish Club
 Society of Physics Students
 Society of Professional Journalists
 Sociology Club
 Speech, Hearing and Language Club
 Statistics Club
 Tau Beta Sigma (band)
 University Theater Guild
 Wildlife Society
 Women in Communications

Art

Professor and Head Richard A. Bivins, M.F.A.

The Department of Art provides courses for the following types of student needs: (1) general educational background, (2) major concentrations in art, (3) minor in art for other majors.

Two degrees are offered in art: Bachelor of Art (B.A.) requiring 40 credit hours with tracks in studio art and art history and the Bachelor of Fine Arts (B.F.A.) requiring 60 credit hours in art. Students may choose one of two options in the B.F.A. program: studio art and graphic design. Fields of concentration available in both degree programs are drawing, painting, printmaking, graphic design, ceramics, jewelry, metalsmithing, sculpture and art history. Because of core curriculum department requirements, the freshman and sophomore years are virtually the same for all majors in art.

Students wishing teacher certification should contact the Teacher Education program in the Col-

lege of Education or their art adviser. Art majors must attain a grade-point average of **2.50** in art courses in order to qualify for licensure and graduation.

The Department of Art maintains an exhibition gallery, the Gardiner Art Gallery in the Bartlett Center for the Studio Arts, with approximately 200 linear feet of exhibition space and 2600 square feet of floor space. Works by artists of national and international reputation, faculty and student works and cultural artifacts are shown.

Botany and Microbiology

Professor and Head Glenn W. Todd, Ph.D.

Botany

Botany is the science concerned with the study of plant life. Green plants are the constantly renewable source of food energy for all animals, including man, and it is important that they be thoroughly understood as survival and ecological balance depend upon this knowledge. As populations increase, the need for more and better supplies of food and fiber also increases. The study of botany underlies several applied sciences: agronomy, forestry, horticulture, plant pathology, range, lake and wildlife management.

To major in botany a student should have a strong interest in science with a good background in chemistry, physics and mathematics. Majors with a B.S. degree may qualify for secondary school science teaching licensure, for technical positions with the federal and state governments in plant inspection and plant introduction work, for plant breeding programs, and for various activities concerned with plants in private industry, such as plant biotechnology.

Facilities used in undergraduate teaching include well-equipped plant structure-function and ecology laboratories, constant-environment chambers, greenhouse facilities, a 160-acre 'ecology preserve' and herbarium with over 125,000 plant specimens. All of the faculty teach and do research in their specialty areas of botany: plant ecology, physiology, taxonomy, anatomy, development and limnology.

Graduate Programs

Programs of research and study leading to the degrees of Master of Science and Doctor of Philosophy are offered in many areas of botany including anatomy and ultrastructure, ecology, physiology, taxonomy, limnology, tissue culture, population biology, genetics and development.

Prerequisites. Applicants for admission must have received a baccalaureate degree from an accredited college and should have had 40 semester hours (or equivalent) in upper-division courses in the biological and physical sciences. A grade-point average of 3.00 (on a 4.00 scale) or above is required for unconditional admission. All applicants are required to submit scores for the Aptitude and Advanced Biology portions of the Graduate Record Examination.

Prerequisites for graduate degrees include successful completion of courses in the areas of plant taxonomy or field botany, plant morphology and anatomy, plant pathology or microbiology, plant physiology or cellular and molecular biology,

genetics and ecology. Chemistry through organic and mathematics through calculus are also required. Students with an undergraduate major in plant science will have completed a substantial portion of this minimal list upon matriculation; those with a less closely related major may be required to take some background courses without graduate credit. Final authority for each student's plan of study, including courses to be taken at the undergraduate level, resides with the student's advisory committee.

A potential graduate student may be required to take one or more advisory examinations covering the various subject matter areas of botany. The examinations to be taken will be determined by the student's screening or advisory committee. The results will be used to determine course work needed or the level at which the student should proceed.

Demonstrated research competence through submission and acceptance of a thesis or dissertation is required for all graduate degrees. A minimum of one semester teaching experience is required of all M.S. and Ph.D. candidates. This requirement may be satisfied by enrollment in a college teaching practicum course (GRAD 5990) or by one semester teaching experience. The requirement for competence in a foreign language will be determined by the student's advisory committee.

All graduate students are expected to attend and participate in departmental seminars.

The Master of Science Degree. Plans of study must include 30 credit hours including no fewer than 21 semester credit hours numbered 5000 or above, which must include six credit hours of thesis and two credit hours of seminar. A minimum of 16 semester credit hours must be in the major department or field above the prerequisites required for entrance into the M.S. program.

The Doctor of Philosophy Degree. The student must complete a minimum of 90 credit hours beyond the bachelor's degree or 60 hours beyond the master's degree. The plan of study must include four credit hours of seminar. No fewer than 25 nor more than 36 hours of BOT 6000 will be allowed in the plan of study. After a Ph.D. candidate has completed most of the course work, qualifying examinations will be scheduled. These will cover major areas of the student's plan of study; all major subdivisions of botany will be included. The examinations will be both written and oral.

Microbiology

Microbiology is the study of microorganisms (i.e., fungi, bacteria, and viruses) and their relationship to higher organisms. Areas of practical and theoretical consideration that require some understanding of microorganisms include: public health and sanitation; biotechnology, genetic engineering; food production and preservation; industrial fermentations which produce chemicals, drugs, antibiotics, alcoholic beverages, and various foods; prevention and treatment of diseases of plants, animals and man; and biodegradation of toxic chemicals and other materials present in the environment. Most of the recent advances in the current understanding of genetics at the molecular level and in genetic engineering have resulted from research involving microorganisms.

Microbiologists work in federal and state departments of public health, the fermentation

industry, laboratories of pharmaceutical companies, hospitals and medical schools, and research laboratories of universities, health centers, research foundations and private companies.

Students interested in careers in microbiology should have broad interests in the biological sciences and an aptitude for biology and chemistry. For some areas of specialization, an aptitude for mathematics and physics is also essential.

Departmental courses are designed to provide comprehensive training and the skills required for working with microorganisms, as well as a broad understanding of all aspects of microbial life. Many of the microbiology positions require graduate level studies. In addition to the B.S. degree, the department offers graduate studies leading to the M.S. and Ph.D. degrees in various areas of concentration including virology, microbial physiology, microbial genetics, microbial anatomy, immunology, and several applied areas.

Medical Technology

The program in medical technology is designed to give the student the broad general education and the highly technical skills that are required for a successful career in this important medical science. The minimum requirement for the B.S. degree in medical technology is three years of university work and one year of clinical laboratory education (internship) in an approved school of medical technology.

Clinical laboratory education. For the B.S. degree and certification, the students will, after three years of university work, complete one year of clinical laboratory education (internship) in a school of medical technology accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) and currently affiliated with Oklahoma State University. Schools of medical technology at the following hospitals are currently affiliated:

Baptist Medical Center, Oklahoma City, Okla.
Comanche County Memorial Hospital, Lawton, Okla.
Hillcrest Medical Center, Tulsa, Okla.
Jane Phillips Hospital, Bartlesville, Okla.
Mercy Health Center, Oklahoma City, Okla.
Muskogee General Hospital, Muskogee, Okla.
Norman Municipal Hospital, Norman, Okla.
Presbyterian Hospital, Oklahoma City, Okla.
Sparks Regional Medical Center, Ft. Smith, Ark.
St. Anthony's Hospital, Oklahoma City, Okla.
St. Francis Hospital, Tulsa, Okla.
St. John Medical Center, Tulsa, Okla.
St. Mary's Hospital, Enid, Okla.
Valley View Hospital, Ada, Okla.

Students entering their twelve months of internship must enroll in Medical Technology Clinical Laboratory (MTCL) courses for 12 credit hours during the equivalent fall and spring semesters and for six hours during the equivalent summer session, as follows: Fall-MTCL 4117, 4125; Spring-MTCL 4236, 4246; Summer-MTCL 4325, 4351. A grade of "I" will be given for the first two semesters of internship. Final letter grades will be awarded upon receipt of the final official transcript showing final letter grades in the six MTCL courses from the school of medical technology by the University medical technology coordinator. If a student fails to complete the entire 12-month internship, no course credit will be awarded. Students will pay the regular tuition for the credit hours in which they are enrolled, except that the facilities fees will be waived for the 30 hours

of MTCL courses. Students who earn a B.S. degree prior to entering hospital internship will not be required to enroll and pay tuition during internship unless they desire to earn a second B.S. degree in medical technology.

Preprofessional courses. NAACLS requires a minimum of 16 hours of chemistry, including organic and/or biochemistry and 16 hours of biology, including immunology. The University requirement for the B.S. degree in medical technology is as follows: two semesters of general chemistry; organic chemistry and quantitative analysis; immunology and 10 additional credit hours of upper-division microbiology (physiology can be included in this 10 hours); college algebra and statistics.

Residence requirements. Although the MTCL courses are considered to be resident credit, the student is required to complete additional resident requirements from regular on-campus courses as follows: 24 hours of resident courses, including 18 hours of upper-division courses listed under the Field of Concentration on the current degree requirement sheet in the *Undergraduate Programs and Requirements*.

Grade-point average requirements. Students, to be qualified for the B.S. degree, must earn a grade-point average of not less than 2.00 overall and 2.00 in upper-division major courses. Students with less than 2.80 overall grade-point average may find it difficult to gain acceptance to a school of medical technology under current conditions of competition.

Applications and admissions to internship. Students should apply directly to one or more schools of medical technology about 12 months prior to the beginning date for internship. Approximately 70 percent of students applying for internship are accepted, depending upon the degree of competition in any particular year. The decision on acceptance of any applicant is entirely at the discretion of the hospital-based school of medical technology. Enrollment is limited by the size of the classes in the affiliated hospital-based programs. Satisfactory completion of the clinical laboratory education is required for eligibility to take a certifying examination. The B.S. degree in medical technology is not dependent on a passing grade on the certifying examination.

Graduate Programs

Programs of course work and research leading to the degrees of Master of Science and Doctor of Philosophy are offered by the Department of Microbiology.

Prerequisites. Applicants for admission must have received the baccalaureate degree from an accredited college and must have completed a minimum of 30 semester credit hours in biological and physical sciences. The Aptitude Test portion of the Graduate Record Examination is required of all applicants. An applicant will not be accepted unless at least one member of the departmental graduate faculty agrees to act as the applicant's adviser at the M.S. level. A majority of the departmental graduate faculty must approve an applicant at the Ph.D. level.

The Master of Science Degree. In addition to the general requirements for the degree, the following departmental requirements must be met: 30 credit hours with thesis. The plan of study must include six credit hours in MICRO 5000, one credit hour in MICRO 5160, and 12 credit hours in formal courses in Microbiology, of which at least eight

credit hours must be at the 5000 or 6000 level, not including MICRO 5000 or other zero-ending numbers except with a prior majority approval by the departmental graduate faculty.

All candidates for the M.S. degree are expected to attend and participate in all departmental seminars. A final oral examination covering the thesis is administered by the advisory committee.

The Doctor of Philosophy Degree. The study plan must include 45 credit hours in formal courses, 22 hours of which must be in microbiology courses at the 4000, 5000 or 6000 level. In addition, two credit hours in MICRO 5160 are required. Students are required to attend and participate in all departmental seminars each semester. Proficiency in a foreign language (French, German, Italian, Russian, or Spanish) must be demonstrated and is required for all Ph.D. candidates in microbiology. This requirement may be satisfied by: (a) passing a graduate proficiency examination given in the Department of Foreign Languages or (b) taking and passing (no grade less than "C") the two-semester introductory sequence in the language of choice (e.g., FRNCH 1115 and 1225).

Candidates for the Ph.D. degree must pass both a written and an oral qualifying examination. The written examination, given the last week of May and October of each year, will include questions from all members of the departmental graduate faculty. At least one question submitted by each faculty member must be answered and passing grades (70 percent) must be received from a majority of the faculty. The oral examination will be administered by the candidate's advisory committee only after the written examination has been passed. The final examination covering the thesis (the candidate may be responsible for additional areas if the committee has stipulated such as a requirement for passing the qualifying examination) is given immediately after the candidate has given a public seminar on his or her research work.

Chemistry

Professor and Head Neil Purdie, Ph.D.

Chemistry is the science that deals with the composition, structure and interactions of matter of all kinds. Materials obtained from the earth, such as ores, petroleum and natural gas, as well as those from plants and animals, such as food, fibers and antibiotics, are all studied and modified through chemical means. The chemist creates from natural products new and useful substances that add to the enjoyment of life. He or she creates new agents to combat pests that destroy great portions of food supplies and new drugs to fight diseases of many kinds. Chemists lead the fight against pollution of the environment that results from rapid multiplication of population and of use of energy. Chemists are at the forefront of the search for new energy sources and for ways to better use existing sources of energy.

A great curiosity concerning the physical world should be characteristic of one who is considering chemistry as a profession. The student should want to learn more about the changes of materials and to use his or her knowledge for the betterment of life. The student should have an interest in physics and mathematics since their principles are basic to the study of chemistry.



Chemists are employed by most large companies in this country, especially those that produce foods, medicines, fuels and materials. These chemists work in the areas of research, sales and quality control. Many chemists become teachers in public schools or colleges. State and federal agencies employ chemists for research and analysis. Generally an M.S. or Ph.D. degree is desirable for those interested in research or college teaching.

The Department of Chemistry offers two bachelor's degrees: (1) a B.S. degree that is accredited by the American Chemical Society; and (2) a B.S. degree that requires less specialization.

The chemical laboratories are modern and well-equipped with instruments for determination of properties of chemicals and studies of reactions. Individual laboratory work is encouraged.

Graduate Programs

Prerequisites. The student should have at least eight semester credit hours (or the equivalent) in general, analytical, organic, and physical chemistry. The physical chemistry should have been based on mathematics through calculus.

A beginning graduate student must take diagnostic examinations covering one year of undergraduate study in analytical, organic, and physical chemistry before the student enrolls for the first time. If the student fails to pass one of these examinations, he or she will be required to repeat the appropriate undergraduate course without graduate credit at the first opportunity. No graduate credit may be earned for chemistry courses numbered below 4000. The student may enroll in graduate courses for which the student has passed the entrance examination.

Admission Requirements. Admission requirements are minimal. For admission without qualification a grade-point average of 3.00 or better is required. Deserving applicants with grade-point averages less than 3.00 are infrequently admitted under probationary conditions. Additional support of the application is sought in the form of three letters of recommendation. Graduate Record Examination scores are not used as a criterion for admission. Recommendations on admission to the Graduate College are made on behalf of the applicant by the departmental admission officer. Acceptance by a permanent adviser is not a prerequisite to admission to the program.

Degree Requirements. A more detailed description of the graduate study program in chemistry is available in a brochure which will be supplied by the Department upon request. The requirements set forth below complement the general requirements stated in the "Graduate College" section of the *Catalog*.

Graduate students are required to take CHEM 4482 unless they present credit for this or a similar course. Attendance and participation in the departmental colloquium and CHEM 5011 and 6011 are required.

The Master of Science Degree. Students must complete at least 30 credit hours of graduate course work in chemistry or related fields.

Each student must present an acceptable thesis dealing with a research problem and pass a final oral examination covering it and related material. Research on the thesis problem should be started as early as possible in the graduate program.

The Doctor of Philosophy Degree. Work is offered which leads to the degree with specialization in analytical, inorganic, organic and physical chemistry. A major in biological chemistry is offered by the Department of Biochemistry.

The student must pass a qualifying examination in the student's field of specialization.

An acceptable thesis must be presented which contains a substantial original contribution to the field of chemistry. The student must pass a final oral examination covering the thesis and related material.

The Doctor of Philosophy degree requires the completion of at least 90 semester credit hours of work beyond the bachelor's degree, divided nearly equally between thesis and course work.

The course requirements are determined by an advisory committee which is appointed for each student.

Computing and Information Science

Professor and Head George E. Hedrick, Ph.D.

Computer science is concerned with theoretical and practical methods of storing, processing and communicating information by means of computers. Professional computer scientists obtain a formal education through the B.S., M.S. or Ph.D. degrees and apply their knowledge to many diversified fields of science, engineering, business and communications. Computer science offers opportunities to both specialists and generalists.

In little more than one human generation, the computer field has evolved from one associated primarily with engineering and scientific calculations of only casual interest to the layman, to a factor of significant influence in almost every aspect of modern life. Technical careers in computer architecture and software design, as well as applications in the business and scientific areas, require a thorough knowledge of the principles of computer science. In addition, most managers in any field require some familiarity with computers, not only to be able to understand and cope with them, but to incorporate them into their own decision-making processes.

The department offers the full range of degree programs—B.S., M.S. and Ph.D. The B.S. program consists of a computer science core curriculum with specialization in business applications, computer systems, scientific computation or computer architecture. Double majors linking computer science with other departments such as accounting and agricultural economics are available.

Most B.S. and M.S. graduates obtain positions in industry. About half of the Ph.D. graduates take university teaching and research positions and half are employed in industry.

An IBM 3081D computer with 16 megabytes of primary memory, supplemented by a VAX 11/780 and two IBM Series One computers, are available for both instructional assignments and research projects. A departmental UNIX-based Perkin-Elmer 3230 computer provides computational facilities for the Computing and Information Sciences experimental software development laboratory, a graduate student and faculty research laboratory. In addition, six Intel 286/310 microcomputers, with six attached terminals, two AT&T 3B2 micros and nine DEC Rainbow microcomputers are available for both research and instruction.

The Department participates in the CSNET and USENIX networks for computer science research and UNIX users. (UNIX is a trademark of Bell Laboratories.)

Graduate Programs

The Department offers degree programs leading to the Master of Science degree, the Doctor of Education degree in higher education, and to the Doctor of Philosophy degree. These programs are designed to prepare an individual to pursue a career in either an academic or an industrial setting. In addition to taking a prescribed set of core courses, a student must take sufficient courses in three of seven general topic areas. These areas are: computer organization, operating systems, information systems, numerical analysis, optimization, programming languages, and theory of computing. In addition to course work, a student must complete a thesis for an M.S. degree and a dissertation for a Ph.D. degree.

The core course requirement assures the student of breadth of knowledge in computer science; the freedom to choose in three of seven areas and additional research assures the student of enough depth in some facets of computer science to be able to carry out independent investigations in those areas and/or put concepts and ideas learned to practical use. The requirement for depth in three of seven areas of specialization allows the student to tailor-make a flexible program of study within the quality guidelines imposed by the Department.

For a master's degree, 30 hours of graduate credit, including a six-credit-hour thesis, are required. A master's degree student is required to pass written examinations in areas of specialization and to pass an oral examination over the thesis or report. There is no foreign language requirement for the M.S.

For an Ed.D. or a Ph.D., 60 credit hours beyond a master's degree or 90 hours beyond a bachelor's degree are required. A dissertation of no more than 30 hours is required. The Ph.D. dissertation must describe original research while the Ed.D. dissertation may be expository. Ed.D. and Ph.D. students must pass (at an appropriate level) written preliminary examinations in areas of specialization. For Ed.D. students, one of the speciality areas must be computer science edu-

cation. Master's students who pass these examinations at the Ph.D. level are encouraged to pursue a Ph.D. program of study. Reading knowledge of at least one foreign language is required for a Ph.D. but not for the Ed.D. Approximately 250 students graduate each year in the United States with Ph.D.'s in computer science. In general, many academic and industrial positions exist for each Ph.D. graduate.

The candidate's baccalaureate degree need not be in computer science in order to enter this program. Admission to the program does require: (1) an undergraduate degree; (2) successful completion of a 10-hour calculus sequence; (3) demonstrated competence in programming with some procedure-oriented programming language such as ALGOL, COBOL, FORTRAN, or PASCAL; (4) qualifying grade-point average and Graduate Record Examination scores.

English

Professor and Head John K. Crane, Ph.D.

The Department of English offers basic service courses in composition and literature for all students in the University; required courses for teacher licensure and other professional programs requiring linguistic and literary competence; and advanced courses in linguistics, creative writing, technical and business writing, film and literature; and literature leading to B.A., M.A. and Ph.D. degrees in English.

Generally, a student with an ACT composite score of 24 or above and an ACT English score of 22 or above need not anticipate any difficulty as an English major. The student should also have at least a "B" grade-point average in high school English courses and a real desire to extend writing skills, reading range and command of language and literature.

Knowledge of language and literature qualifies a student for positions in college and high school teaching, in business, in government and in professional writing. Yet the capable student



need not have in mind a specific career when becoming an English major; many opportunities will appear in the progress toward a degree. Any career is open to the English major that is open to most students with a liberal arts degree. Many English majors are in preprofessional work preparing for careers in law, medicine, the Armed Forces or the ministry. Publishing, advertising and social work offer a further variety of possibilities. Training in composition will develop an ability "to go right to the point"; and training in literature, by making a student familiar with diverse types of ideas, as well as individuals, will give a view-and review-of personal opinions and judgments clearly and consciously. The English major who chooses teaching as a career will be involved in the development of the most inexhaustible and the most valuable basic resource of our nation, its young people, at the secondary, college and university levels.

The English major, whether in liberal arts or secondary teaching, will have about 45 credit hours of lower- and upper-division English, 41 hours of lower-division general studies and 44 hours of elective or professional courses for the B.A. degree.

Graduate Programs

Graduate study in English at Oklahoma State University allows students freedom of choice. Only one course—"Introduction to Graduate Studies"—is required of all graduate students, and only one additional course—"Teaching Freshman Composition"—is required of all graduate teaching assistants. As a result, all students, in cooperation with their advisers, design their programs in accord with career goals. In addition to American and British literature, the Department of English offers graduate work in composition and rhetoric, creative writing, film, linguistics, and literary theory. At the M.A. level, separate programs in teaching English as a second language (TESL) and in technical writing prepare teachers for the bilingual classroom and technical writers for industry. Ph.D. degree candidates have an additional interdisciplinary area which allows them to blend other disciplines with literary studies. The variety of choices and the flexibility built into the program prepare the graduate to meet the demands of a changing academic marketplace.

Stipends, Scholarships, and Awards. Graduate assistants and associates, regardless of geographical origin, are charged in-state fees. Stipends for graduate assistants and associates are paid on a nine-month basis.

M.A. and Ph.D. Examinations. During their first year in the graduate program, all entering students are required to pass an examination which tests knowledge of literary terms and ability to perform a stylistic analysis of poetry or prose.

Upon completion of all course work, M.A. students take a three-part examination over American literature, British literature, and one of the following subjects: composition and rhetoric, film, linguistics, and literary theory. Each of the examinations is based on a reading list containing no more than 45 works.

Ph.D. students are examined in at least three of the five following subject areas (students may exempt two of the five areas by virtue of course work):

- American Literature to 1910
- British Literature to 1660
- British Literature from 1660 to 1910

Modern British and American Literature
Interdisciplinary Studies: American studies, composition and rhetoric, film, linguistics, literary theory, TESL, technical writing

One of these areas is designated as the student's primary area of study.

Teaching Opportunities. Graduate teaching assistants may choose from a wide range of assignments, including teaching freshman composition and working individually with students in the writing laboratory. After requiring some classroom experience and demonstrating excellence, assistants may also teach introductory courses in literary genres, literary surveys, creative writing, or technical and report writing.

The Master of Arts Degree. Every M.A. degree student is required to take 24 credit hours of course work and six thesis hours. (Applicants who were not English majors may be asked to enroll in additional hours to sharpen skills.) Foreign language study is accomplished in addition to the cluster of 30 hours of work in English. English 5013, "Introduction to Graduate Studies," is required of all M.A. candidates. The remaining 21 hours of course work will be chosen by students in consultation with their advisers.

A dictionary-reading knowledge of one foreign language is required. When appropriate, students may use six hours in linguistics or Old English to satisfy the language requirement.

Master's degree candidates prepare either a scholarly or a creative work for thesis credit. A thesis committee consisting of a thesis adviser and two other faculty members supervises this project. Students choose the faculty members with whom they work; the project should be a valuable experience for both candidates and supervisors.

The Master's Program in TESL. *Admission to Teaching English as a Second Language.* TESL is a program within English having its own course requirements and examinations. Applicants who speak English as a second language should have had an undergraduate concentration in English or the equivalent in practical experience. After initial testing and counseling, TESL students may be asked to enroll in a course designed to improve their command of English. Applicants who speak English as a first language need not have majored in English, but they must have completed at least six hours of upper-division foreign language training. Native speakers who have not done so should expect to complete two semesters of foreign language courses in addition to English requirements.

TESL Examinations. TESL examinations cover four areas: traditional English grammar, TESL methodology, and two areas chosen by the student.

TESL is especially relevant to the public school classroom as a result of recent legislation concerning bilingual education. Teachers in English and other areas of expertise will find this program especially useful. This program, however, does not serve as a substitute for teacher certification. (A special TESL brochure is available.)

Course work. Plan I: 24 hours of course work and a thesis for a maximum of six hours are required. Plan II: 33 hours of course work are required and a research project or substantial paper.

The Master's Program in Technical Writing. *Admission to the Technical Writing Program.* Technical writing is a program within English having its own course requirements and examinations. Applicants should have a background in a tech-

nical area and in technical writing. Following a review of previous academic and work experience, as well as the results of a diagnostic test, students may need to enroll in courses designed to improve their mastery of a technical area or technical writing or both. Students need not, therefore, have majored in technical writing or a technical area.

Examinations. Examinations in technical writing, in addition to the diagnostic examination, cover these areas: technical writing theory, and a choice of two from among language and linguistics, rhetoric and the development of style in technical and scientific literature, British or American literature, or a special field of technical knowledge. Special restrictions do apply to which examination areas the student may select and students should consult the special technical writing program materials.

Course work. Plan I: 24 hours of course work and a thesis for a maximum of six hours. Plan II: 33 hours of course work. A research project or substantial paper in addition is required.

The Doctor of Philosophy Degree. A master's degree in English from an accredited university, a graduate grade-point average of 3.50 (on a 4.00 scale), and positive letters of recommendation are the usual requirements for admission to the doctoral program. If one of these factors is not clearly present, admission may be granted with qualifications. The doctoral student is expected to earn 60 hours of credit beyond the hours required for the M.A. Of these 60 hours, a maximum of 20 hours may be devoted to the dissertation.

A dictionary-reading knowledge of two foreign languages is required of the doctoral student. When appropriate, students may use six hours in linguistics or old English to satisfy the language requirement. The doctoral student may also fulfill this requirement by demonstrating mastery of one foreign language. Details about the foreign language requirement are found in the Department's *Guidelines for the M.A. and Ph.D. Programs in English*.

Doctoral candidates submit a dissertation based upon original research and prepared under the guidance of a dissertation committee composed of at least three faculty members from within the Department and one faculty member from outside the Department. Creative writing students may present as their dissertations original works in poetry, drama (including filmscripts), or prose fiction. The dissertation is defended orally by the candidate at a public examination in which the argument, credibility, and value of the work are challenged.

Course Requirement for Teaching Assistants. In their capacity as teachers, assistants are required to enroll in "Teaching Freshman Composition." This course appears on student transcripts and may be counted for English degree credit.

Foreign Languages and Literatures

Professor and Head John A. Schillinger,
Ph.D.

The Department of Foreign Languages and Literatures offers French, German and Spanish as major fields of study. Minors may be earned in Chi-

nese, French, German, ancient Greek, Japanese, Latin, Russian and Spanish. Course work in Italian is also offered, and other languages are scheduled whenever the demand justifies. Certificates of achievements are also awarded by the Department for course work in German, Russian and Spanish.

In all languages offered by the Department, elementary courses are available for students with no previous experience. Special intensive courses in French and Spanish (10 credit hours in eight weeks) are offered in the summer session. Students with high school or equivalent foreign language experience will be placed at levels commensurate with their individual proficiency. A major in a foreign language is often supported by study of another language or work in other fields. Many language majors choose to qualify for an international area studies certificate. Several certificates, such as Russian and East European Studies, Asian Studies, Latin American, and Ancient and Medieval Studies, are available. A freshman with a good high school background in language can usually pursue two languages to the level of a major.

The study of foreign languages is a vital and humanizing part of a general education. In a rapidly changing world of shrinking geographical horizons, it offers new cultural insights, breaks down insularity, fosters discipline of thought and expression and leads to a better understanding of one's native language. Foreign language majors may expect to find openings in a wide variety of careers in law, medicine, government, industry and commerce, all of which require a good liberal arts degree. Job opportunities are greatly enhanced for those who combine foreign language study with a major or minor in other disciplines. Moreover, there is a growing demand for foreign language teachers in secondary education. Bachelor of Arts candidates may qualify for teaching licensure without increasing the number of hours required for graduation.

Additional options for study include literature, civilization and culture, and linguistics courses regularly taught in English. Courses are also offered in French and German for students who need only a reading knowledge of the language.

The M.S. degree in curriculum and instruction, with a specialization in French, German or Spanish, is available for prospective teachers of foreign languages in elementary and secondary education.

Geography

Professor and Head Richard D. Hecock,
Ph.D.

Geography is concerned with the surface of the earth and its immediate atmosphere. Geographers study the similarities, the differences and interactions among phenomena in this region. Geographers are interested in the economic, social, political and environmental qualities of places, and they are interested in how these attributes interact.

Geographers attempt to understand human behavior by answering such questions as: Where do people work? Where do they play? Where do they live? Why do people make these locational choices? What are the consequences of these decisions and behavior?

Because the physical environment is important in many explanations of spatial behavior and spa-



tial patterns, geographers have traditionally concerned themselves with relationships between humans and their environment. What impact do people have on the land? What impact does the land have on people? How do people perceive their environment? How does this perception influence their activities?

Finally, geographers examine spatial patterns and behaviors in specific regional contexts. These analyses occur at many levels—world-wide, national and local. These kinds of studies lead to suggestions for change and improvement—the application of geography to contemporary rural, urban and regional problems. Thus many aspects of urban, regional and national planning are geographic in nature.

No academic discipline is closer to everyday practical life than geography, and the Department of Geography offers seven tracks that reflect the discipline's practical concern. Students may specialize in urban and regional planning, business or economic geography, environmental studies, area studies, geographic education, geographic techniques or remote sensing. A geography minor program is also available for those who see geography as complementary to another field of study.

Those who wish to study geography tend to be interested in their own surroundings and in other places. They also possess a curiosity for maps, the basic tool of the field. Students of geography will become familiar with remote sensing, computer graphics, statistics, and cartography—tools which facilitate geographic analysis.

Many careers are available to the geography major or minor. Recent graduates have been employed in urban and regional planning, community development, locational analysis in both the public and private sector, resource planning and management, various forms of domestic and foreign service, cartography and teaching. Geography also provides an excellent foundation for a liberal education and is a good basis for a career in business, industry or government.

The Department possesses a cartographic laboratory. The Center for the Applications of Remote Sensing, directed by a geographer, has state-of-the-art digital processing capabilities. The Department has direct access to the University's computing facilities through both standard and graphics terminals. Strong support for the economic-business and urban-regional planning geography programs are provided by the College of Business Administration and the School of Architecture. Resources management, remote sensing and physical geography tracks are sup-

plemented by offerings in agricultural economics, forestry, geology, soils, biology, and civil engineering.

The Department of Geography offers the B.A. and B.S. degrees. An advanced program leading to the Master of Science degree is also available. Geography graduate students may want to be affiliated with the environmental science or historical preservation degree programs.

Graduate Programs

The Department of Geography offers work leading to the Master of Science degree. This degree program emphasizes preparation for employment in positions which are enhanced by an ability to recognize and to interpret spatial distribution, and to analyze regions.

Particular emphasis is placed on the applied aspects of geography, with many graduates employed by city, regional, state and national planning agencies. Interdisciplinary work is strongly encouraged, particularly in environmental science, resource management, urban/regional studies, historic preservation and remote sensing. Recipients of the M.S. in geography have also gone on to a variety of successful careers in other fields, including retail store location analysis, banking, and university teaching and research.

The Master of Science Degree. Admission to the master's program in geography is granted to college graduates with superior academic records. An undergraduate geography major is not required. Majors from the social, physical, and behavioral sciences and from the humanities are encouraged to apply. Incoming graduate students must demonstrate competency in cultural geography, physical geography, statistics, cartography, and other geographic concepts. If deficiencies are apparent, they will have to be corrected, possibly increasing the time needed to complete the degree.

Two basic plans of study exist for the master's degree. Each plan is flexible but includes directed research experiences involving both data generation and the analysis of existing data. One of the plans requires a minimum of 30 credit hours including a thesis; the other requires a minimum of 32 credit hours and a research project culminating in a report. All candidates must satisfy a statistics requirement.

Plans of study can be developed to accommodate many specialties including regional planning, historic preservation, remote sensing, resource management, physical geography and social geography.

Geology

Professor and Acting Head Gary F. Stewart, Ph.D.

Geology is the science of the earth. As such, it utilizes information from the other physical and biological sciences, mathematics and engineering. In many ways it is a common meeting ground for these disciplines. Within geology are many different specialties, for example economic geology, petroleum geology, ground-water geology and paleontology. However, to specialize in any area normally requires graduate study.

To achieve success in geology a student must become reasonably proficient in the information acquired from basic courses in physics, chemistry, mathematics, and, to a lesser degree, statistics and computer science. Some additional work beyond the basic courses is expected in at least one of these areas of study.

Geologists are employed extensively in applied and pure research and in teaching. Applied research includes the exploration for and development of oil and gas fields, metallic and nonmetallic mineral deposits and reservoirs of ground water. The geologist is well-prepared to pursue and direct environmental studies. Careers in research may be found with private employers, governmental agencies or universities. Teaching positions in geology are available at all levels beginning with secondary education. As with most other sciences, more employment opportunities will be available to students with advanced training and a broad background. In general, careers as teachers at the college and university level and in research are open only to those with graduate training.

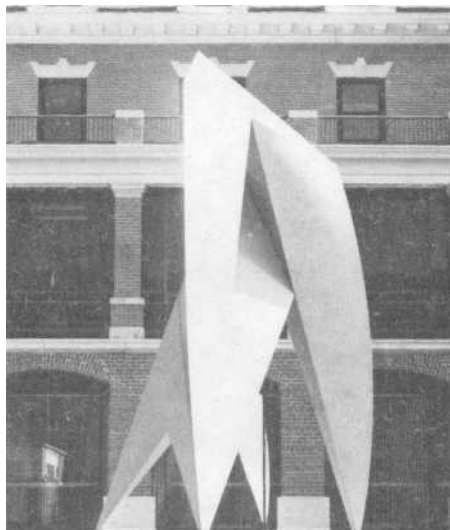
The Department of Geology at OSU offers a broadly-based rather than a specialized undergraduate program. The program leads to a B.S. degree in geology, which prepares the student for employment with industry or for graduate study.

Graduate Programs

Prerequisites. The student should have at least 39 credit hours in geology, including all those courses listed as requirements for the B.S. degree in geology at Oklahoma State University. These additional requirements are minimal: a minimum of nine credit hours of chemistry, eight hours of physics, four credit hours of zoology or botany, six credit hours of mathematics and 13 credit hours of analytic geometry and calculus or six hours of statistics and two credit hours of computer science. Deficiencies in course work must be made up by the student after entering the program. The Graduate Record Examination is required for admission to the program.

The Master of Science Degree. Emphasis in the master's program is placed on classical geology and various aspects of applied geology, such as economic geology, engineering geology, environmental geology, hydrogeology, and petroleum geology.

Each candidate must complete at least 30 semester credit hours of work beyond the prerequisites. As many as 12 of these may be taken in other departments of the University upon approval by the candidate's advisory committee. Each candidate is required to write a thesis. A final defense of the thesis and the research that it documents is required of all students.



School of Health, Physical Education and Leisure

Professor and Director George H. Oberle, P.E.D.

The School of Health, Physical Education and Leisure (HPEL) is a multi-faceted organizational unit encompassing three academic departments: health, physical education, and leisure; four leisure service programs: recreation, intramurals, sports clubs, and outdoor adventure; and the Health and Fitness Center. (See "Leisure Services" in the "Student Life" section.) The programs of the School provide a complex of curricular and cocurricular endeavors emphasizing the dual role of meeting the continuous need for enriching and broadening the scope of the individual, and at the same time, preparing the individual professionally for useful service to mankind.

Health

Associate Professor and Chairman Betty Edgley, Ed.D.

The Department of Health offers a selection of two major undergraduate professional preparation tracks. Track one emphasizes school health education which prepares the student to teach health in a public or private school system. Track two, community health education, is a nonteaching track that provides students with an expertise in developing community-based instructional programs in community and public health agency settings. In addition, track two will provide the student with the expertise to develop fitness and wellness programs within school, university, hospital and industrial settings. A student may combine both tracks by completing a student teaching internship required by track one and also completing a community health internship required by track two. An emphasis is also offered in athletic training that will meet state licensure requirements. The Department of Health also offers courses which can contribute to a student's general education, as well as supporting degree requirements for selected disciplines across the campus.

Leisure

Assistant Professor and Chairman Lowell Caneday, Ph.D.

The Department of Leisure provides students with three basic academic services: (1) students may earn a Bachelor of Science degree in recreation, (2) students from other disciplines may earn a minor in recreation as a generalist offering, and (3) students from throughout the University may enroll in leisure course offerings to meet their particular needs and interests related to fitness and the wise use of leisure time.

The Bachelor of Science degree in recreation earned in the Department of Leisure is designed to give students a professional foundation for careers in recreation and leisure services. Three emphasis areas are provided for developing greater competencies in administration and management, therapeutic recreation and outdoor recreation. The curriculum prepares students for professional opportunities in recreation program services for Armed Forces, camps, outdoor recreation areas, churches, colleges, unions, fitness centers, schools, youth-servicing agencies, and institutions serving special populations such as the ill, disabled, handicapped, aged and incarcerated.

The purpose of the general studies courses in the Department of Leisure is to assist individuals in the development of capabilities for use of personal leisure. Courses are designed to provide individuals with the knowledge and skills necessary to appreciate the importance of activity and physical fitness for everyday living in both working and leisure time pursuits; to assist them in developing a satisfactory level of performance in such leisure time activities as sports, dance and aquatics, and to give a basic understanding of the body and its functions.

Physical Education

Associate Professor and Chairman Steven W. Edwards, Ph.D.

The Department of Physical Education includes a curriculum designed to prepare well-qualified teachers of physical education for elementary and secondary schools; to offer services to school systems in a continuous effort to improve the total educational program; and to provide support courses for other teaching certification programs. Upon receiving the B.S. in physical education, and subject to passing an appropriate curriculum examination, the graduate will be qualified for state licensure to teach in grades K-12. Tracks offered through the Department include athletic coaching, elementary physical education, secondary physical education, dance and adapted physical education.

For students not interested in teaching physical education, the department offers tracks in sports science and sports management. The sports science program is designed to educate the student about the fundamental nature of human movement from a scientific perspective. It prepares the student for further study at the graduate level in either the physiological or psychological dimension of human performance.

The sports management track is designed to prepare students to direct, coordinate, and develop sports programs in settings other than schools.

Graduate Programs

OSU's School of Health, Physical Education, and Leisure offers graduate programs at both the master's and doctoral level. The Master of Science degree in the department has three major emphasis areas: health, physical education, and leisure sciences with emphases in each area. In cooperation with the Department of Educational Administration and Higher Education, an Ed.D. in higher education with a specialization in health, physical education, and/or leisure is offered. Based on an analysis of the student's previous professional preparation and experience, an individual program, consisting of course work, practical experience and research, is designed to meet the student's future needs and interests.

The Master of Science Degree. Emphases are available in health, physical education and leisure.

The Master of Science degree is not a teacher certification program. Undergraduate requirements for certification would have to be satisfied before the student is eligible for certification from the State Department of Education.

The Department of Health offers a master's degree with a specialization in applied health sciences (exercise and fitness, biomechanics/kinesiology, wellness) and other allied health science areas.

The Department of Leisure offers a master's degree program with a specialization in leisure which has three areas: administration and management, outdoor recreation and therapeutic recreation.

The Department of physical education offers a master's degree with a specialization in physical education which has four areas: adapted physical education, curriculum and methodology, administration and motor behavior.

Admission Requirements. Depending upon the area of emphasis, a bachelor's degree in physical education, health education, leisure or a related area is required. Applicants without an approved undergraduate program will be required to make up deficiencies by taking the specified prerequisites. Applicants must have a GPA of at least 3.00; if not, they may be admitted on a provisional basis, depending upon recommendation from the Department. Students are required to meet one of the following two requirements: (1) a GRE score of 950 or an MAT score of 35, or (2) successfully complete a writing sample test administered by the School. Three letters of recommendation must be submitted.

General Requirements. A minimum of 32 hours of graduate credit must be taken for the master's degree program or 30 hours with six hours for a thesis, including 21 hours of courses at the 5000 level and 15 hours in the School. Graduate students normally carry an academic load of 9-12 semester hours.

Core Courses. Requirements for the master's degree programs include a basic statistics course and a research design course.

The Doctor of Education Degree. Specializations are available in health, physical education, and leisure.

Admission Requirements. Students entering this program should have a bachelor's degree and/or master's degree in health, physical education, or recreation/leisure from an accredited institution; if not, additional course work may be required. Application for admission in this program should be made to the head of the Department of Educational Administration and Higher Education, Gun-

dersen 309, Oklahoma State University. The applicant should have an undergraduate GPA of at least 2.70 and a graduate GPA of at least 3.20. Students are required to take the Miller Analogies Test.

General Requirements. A minimum of 60 hours above the master's degree or 90 hours above a bachelor's degree is required for the Doctor of Education degree. Students must have completed all prerequisites and are required to complete 15 hours specified in higher education. The remainder of the program is individualized and interdisciplinary according to the goals of the student. Ten hours of credit are allotted on the study plan for the dissertation and comprehensive examinations in higher education and in the student's area of specialization are given twice annually, near the completion of course work.

Graduate teaching and research assistantships are available. For further information and application forms, write to the coordinator of Graduate Studies, School of HPELS, 101 Colvin Center.

History

Professor and Head Joseph A. Stout, Jr., Ph.D.

History is the record, explanation and interpretation of the totality of man's activities. The study of history is unique in its concern for the time factor in man's development. History enhances the individual's knowledge of himself and gives perspective and deeper meaning to contemporary events. Courses in the Department of History are intended to give the student a broad understanding of the evolution of civilizations, peoples, countries and institutions, and an insight into the meaning of this evolution, as well as to prepare graduates for many types of employment.

Because history is basic to many special fields, the Department's instruction is designed to aid students interested in education, law, journalism, scientific and technical disciplines, public service and business administration. Students in colleges other than the College of Arts and Sciences who wish to pursue the study of history are encouraged to enroll in courses of interest. The Department of History offers a number of courses that satisfy General Education requirements in the social sciences and the humanities. It participates actively in the Honors Program and offers to its majors the option of pursuing a special plan of study leading to a departmental Honors certificate. The Department of History also participates actively in the Area Studies Certificate program.

Graduate Programs

The Department of History offers programs leading to the M.A. or Ph.D. in history. In addition to the general Graduate College requirements, the candidate for the Master of Arts or Doctor of Philosophy degree with a major in history is expected to have prerequisites of approximately 30 semester credit hours (including 18 upper-division hours) of undergraduate history courses, with an undergraduate grade-point average of at least 2.50 overall or 3.00 in the last 60 hours of undergraduate work. A student whose undergraduate preparation is deficient or minimal may expect to spend somewhat longer than one year's study for the master's degree.

The Master of Arts Degree. Candidates for the Master of Arts degree choose one of three alternative plans. Requirements common to all three plans include completion of a course (HIST 5023) in historical methods of research and writing, several graduate seminars, and a two-hour oral examination at the end of the program. Students must maintain at least a 3.00 ("B") grade-point average. An advisory committee will be appointed for each student during the first semester of enrollment. The three plans are designed for different careers, and the distinctive requirements of each are summarized below:

Plan I-(recommended for those planning to continue graduate studies at the doctoral level): A minimum of 30 credit hours of graduate courses, including at least nine in American history and at least nine in non-American history. At least nine hours must be in seminars (American or non-American). The student must write an original thesis (for which six hours of credit will be granted), and must demonstrate either a reading knowledge of one foreign language or competency in statistical methods.

Plan II-(recommended for those planning to work in historic preservation, archives, museums, or public history): A minimum of 33 credit hours of graduate courses, including at least nine hours of history seminars. With approval of the advisory committee, as many as 15 of the required 33 credit hours may be taken in related disciplines. The student must complete an internship and write a report.

Plan III-(recommended for those planning to teach in high schools or junior colleges): A minimum of 33 credit hours of graduate courses, including at least six in American history and at least six in non-American history. At least 12 hours must be in seminars (American or non-American), and the student must submit a research paper acceptable to all members of the advisory committee. With the approval of the committee, as many as 10 of the required 33 credit hours may be taken in a related discipline.

The Doctor of Philosophy Degree. Admission to the doctoral program requires a satisfactory score on the Graduate Record Examination, including the Advanced Examination in History. Specifically, a prospective student must score 1050 on the GRE Verbal and Quantitative Aptitude tests or a combined score of 1550 on the GRE Aptitude and Advanced tests. Each applicant must



also meet Oklahoma State University requirements for the M.A. degree in history, with a grade-point average of at least 3.20 (on a 4.00 scale) in previous graduate work in history.

No definite course requirements apply to all students. Work necessary to prepare the student for his or her written and oral examinations will be indicated in a plan of study which is prepared and approved by an advisory committee appointed by the dean of the Graduate College. Generally, a minimum of 60 semester graduate credit hours beyond the M.A. degree with a "B" average for all courses is required.

Each student shall select five of the following areas of concentration:

United States to 1865
 United States since 1865
 United States Local and Regional
 Ancient Mediterranean World
 Medieval Europe
 Early Modern Europe to 1815
 Europe since 1815
 English History
 Russian History
 Latin America
 East Asia
 History of Science

A student specializing in American history must select three fields in American history and two in non-American history. Conversely, a student specializing in some area of non-American history must select three fields in non-American history and two in American. With the consent of the advisory committee, the student may substitute a broad thematic historical field or a pertinent field outside history as one of the five fields.

Upon admission to do graduate work at the doctoral level, the student's temporary adviser is the departmental director of graduate studies. Before the middle of the student's second semester, an advisory committee is appointed to assist the student in preparing the plan of study. This committee will consist of five members of the departmental graduate faculty (one from each of the examination fields), including the student's major adviser, who acts as chairman.

No student is admitted to candidacy until he or she has (1) demonstrated a reading knowledge of two foreign languages (proficiency in statistical and quantitative methods of research may be substituted for one of these languages); (2) completed all course work on the plan of study; (3) completed with a "B" grade graduate courses in historical methods and historiography; (4) obtained approval of a proposed dissertation topic; and (5) passed comprehensive written and oral examinations in each of the areas of concentration.

Upon admission to candidacy, the student begins work on the dissertation. Supervised by the major adviser and members of the advisory committee, the dissertation provides the student an opportunity to do original research on a topic within the major area of study. The final dissertation must be submitted to the Graduate College in accordance with the regulations contained in the "Graduate College" section. Upon completion of the dissertation, the student undergoes a final examination. Oral in nature and no more than two hours in length, the examination is primarily a defense of the dissertation.

School of Journalism and Broadcasting

Advertising, Journalism, Public Relations, Radio-TV-Film

Professor and Director Marian D. Nelson, Ed.D.

At Oklahoma State University, the professional areas of mass communication are grouped in the School of Journalism and Broadcasting (SJB). These areas seek to complement each other with a minimum of duplication.

A modern democratic society cannot live by its ideals if its mass media practitioners are merely competent technicians who worry less about *what* is reported to the people than *how* it is reported. Citizens must have accurate information about social, political and economic problems as well as knowledge of actions taken by government agencies at all levels. From village council to Supreme Court, there can be no exception from the rule that public business is the public's business.

To speak to people through radio, television or the printed page requires a knowledge of the people to whom one wishes to speak and an understanding of the world in which they live. Therefore, the curricula of the School of Journalism and Broadcasting are designed to offer more than training in communication techniques. Three-quarters of the SJB student's time at the University is devoted to a liberal education in the arts and sciences. At the same time, the student gains competence in a professional field through courses in the School.

In brief, then, the purposes of the School of Journalism and Broadcasting are:

1. To provide thorough, broadly-based professional education for the mass-media professions;
2. To encourage liberal and cultural background in the arts, literature, languages, and social, biological and physical sciences;
3. To promote scholarly research and professional performance;
4. To provide future media leadership through the preparation of high school and college educators and their participation in professional communication associations;
5. To emphasize high standards of ethics and responsibility in mass communication.

Special Requirements

Any student who elects a specific option from those listed in succeeding pages should meet with an SJB faculty adviser as soon as possible. The ability to type a minimum of 30 words a minute is required for registration in all writing courses beginning with "Newsriting I" (JM 2113). In addition, competence in typing is expected of all majors in the School. Prospective students are advised to prepare for this requirement before enrolling at the University. Proficiency in typewriting can be demonstrated by a high school grade of "C" or better in typewriting or by passing a School typewriting test.

Advertising

Ideas ranging from the introduction of new products and services to public service messages are communicated to mass audiences through advertising. Advertising also provides the economic base for mass media-newspapers, radio and television, magazines, cable-thus freeing them from the political control found in many countries.

Upon a strong liberal arts foundation, majors in advertising build educational experiences which prepare them for work in copywriting and layout, production, management, media selection, market analysis, sales and campaign planning. Basically, the program focuses on decision-making and problem-solving, and includes courses in marketing, psychology, sociology, management and economics. Opportunities for part-time jobs, summer internships and participation in the Advertising Club round out the student's experience.

The Oklahoma State University advertising curriculum is accredited by the Accrediting Council on Education in Journalism and Mass Communications. This means it has the approval of leaders in both education and the advertising profession. The program is affiliated with the American Association of Advertising Agencies, the Advertising Federation of America and the Point of Purchase Advertising Institute.

Journalism

News coverage today has gone beyond routine reporting on police and city hall activities. The modern newspaper or broadcasting station tries to spotlight the diverse components of our complex society. This objective calls for writers with broad interests and special knowledge in politics, religion, science, business, economics, art and public welfare. From the ranks of these reporters come the future print and broadcast journalists.

Programs offered in journalism are:

News-editorial-This program prepares students for writing and editing positions on newspapers, magazines, trade journals, in radio and television news departments, in book editing and publishing.

Photojournalism-Careers filled by these graduates include newspaper, magazine and industrial photography, television newscast, and public relations graphics.

Teaching licensure-This program, taken in the College of Education, prepares students to teach journalism at the high school level.

Technical communication-Students may combine agriculture and journalism or home economics and journalism to prepare for specialized work in technical writing and editing. These programs are developed in cooperation with the Colleges of Agriculture and Home Economics.

Community journalism-This option, for those who plan eventually to own or manage weekly or small daily newspapers, requires experience in news, advertising and management, and thus requires a wide range of courses both within and outside the School of Journalism and Broadcasting. This program is an individualized one and should be entered only with the advice and consent of the SJB director.

Journalism majors assist in the publishing of a campus newspaper, *The Daily O'Collegian*, and in the newsroom of radio station KOSU, located in the School. Many juniors and seniors find this

work a source of revenue to assist them in the cost of their education. Advanced news-editorial students also spend one summer on an internship with a commercial newspaper or broadcasting station, and some spend the spring or fall semester on a daily newspaper. Some hold part-time jobs as campus correspondents for various publications or work for media in the Stillwater area. Part of the laboratory work in JM 2113, 2133, 3083 and 3123 is done on the *O'Collegian* or other publications.

The news-editorial curriculum is accredited by the Accrediting Council on Education in Journalism and Mass Communications, and this approval is endorsed by the American Newspaper Publishers Association, American Society of Newspaper Editors, Southern Newspaper Publishers Association and other highly regarded media groups. The journalism program is affiliated with the Oklahoma Press Association, Southwestern Journalism Congress, Society of Professional Journalists, Association for Education in Journalism and Mass Communications and the Graphic Arts and Technical Foundation.

Public Relations

Public relations practitioners perform a variety of tasks. As writers, they prepare news releases, speeches, trade-paper and magazine articles, texts of booklets, radio and television copy, product information and stockholder reports. They may supervise the company newspaper, magazine or newsletter, or other company communication programs.

The public relations option is related to and draws upon both advertising and news-editorial curriculum, as do the public information departments of government, business and industry. The public relations program is affiliated with the Society of National Association Publications, International Association of Business Communicators, and the Public Relations Society of America.

Radio-TV-Film

The programs in radio-television-film are designed to prepare students for careers in broadcasting. They offer graduates a chance to develop abilities in announcing, production, copywriting, news, documentary, sports, sales and management.

The undergraduate degree is offered in these professional options:

Production and performance-For students who wish to hold on-the-air jobs in broadcasting or who desire to prepare for positions as directors and producers of radio and television programs.

News and public affairs-For students who wish to write, edit and produce news, discussion and documentary programs for broadcasting stations, networks and cable companies.

Sales and management-For students who wish to write, sell and produce commercial messages, and to move into management and/or ownership positions on radio and television stations.

The facilities of the University's color-equipped Telecommunications Center, and two full-time radio stations, KOSU and KVRO, and an electronic news-gathering laboratory (ENG), make it possible for majors to acquire experience along with professional studies. Radio-television-film is affiliated with the National Association of FM Broadcasters, University Film Association, Radio

Advertising Bureau, Oklahoma Association of Broadcasters, National Association of Broadcasters, Radio-Television News Directors Association, Broadcast Education Association and National Public Radio.

Graduate Programs

The School of Journalism and Broadcasting offers courses leading to the degree of Master of Science in mass communication. The School also cooperates with the College of Education in planning and supervising study leading to a Doctor of Education degree with emphasis in mass communication.

Prerequisites for unqualified admission to the master's program include a bachelor's degree in an area of mass communication with an overall grade-point average of 3.00. Potential doctoral candidates must have a bachelor's or master's degree in a mass communication area, in addition to professional experience. A graduate of a non-mass communication discipline may enter the Master of Science program, with stipulation that he or she completes, without graduate credit, foundation courses relevant to career interests.

Basic emphasis is on application of current communication theories and research methods and designs to the professional aspects of mass communication. Electives in the behavioral sciences are encouraged.

Mathematics

Professor and Head William H. Jaco, Ph.D.

Contemporary mathematics is concerned with investigations into far-reaching extensions of such basic concepts as space and number and also with the formulation and analysis of mathematical models arising from varied fields of application. Mathematics has always had close relationships to the physical sciences and engineering. As the biological, social and management sciences have become increasingly quantitative, the mathematical sciences have moved in new directions to develop interrelationships with these subjects.

Mathematicians teach in high schools and colleges and work in industry and government. In industry mathematicians usually work in research, although they have become increasingly involved in management. The firms employing the largest number of mathematicians are in the aerospace, computer, electronics and communications industries. In industry a mathematician typically serves either in a consulting capacity, giving advice on mathematical problems to engineers and scientists, or as a member of a research team composed of specialists in several fields. Among the qualities which he or she should possess are breadth of interests and outlook, the ability to think abstractly and a keen interest in problem solving.

An undergraduate specializing in mathematics will begin with calculus or sometimes with college algebra and trigonometry. Well-prepared students are encouraged to establish credit in elementary courses by passing advanced standing examinations. All majors take courses in differential equations, modern algebra and analysis. The remainder of the field of concentration is determined by the student's interests and future plans. Courses are available that serve as preparation for graduate work, for high school teaching and for employment



in industry. Students are encouraged to acquire proficiency in computer programming and to take substantial work in related fields in which they have a special interest.

Many of the more challenging positions in mathematics require study beyond a bachelor's degree. In particular, teaching in a junior college requires at least a master's degree and possibly a doctorate. Approximately 25 percent of the students receiving a bachelor's degree in mathematics go on to graduate work.

Graduate Programs

The Department of Mathematics offers programs leading to the Master of Science and Doctor of Philosophy degrees and also cooperates with the College of Education in supervising a program leading to the Ed.D. degree with emphasis in mathematics.

Prerequisites. A student beginning graduate study in mathematics is expected to have had, as an undergraduate, at least 18 semester hours in mathematics beyond elementary integral calculus including courses in differential equations, linear algebra and modern algebra. An applicant whose preparation is deficient may be admitted to the program, if otherwise qualified, but will be required to remove the deficiency, increasing somewhat the time required to complete work for the degree. Prospective graduate students are advised to take at least introductory courses in related fields such as physics, statistics, and computer science.

The Master of Science Degree. A Master of Science degree requires 32 credit hours of course work in mathematics and related subjects, although some of the course work may be replaced by a master's thesis. Each student must pass a master's examination on basic graduate courses in mathematics. The Department offers a major in applied mathematics designed as preparation for mathematical work in industry and government.

The Doctor of Philosophy Degree. Admission to the Ph.D. program is granted only to students with superior records in their previous graduate study. A minimum of 90 semester credit hours of graduate credit beyond the bachelor's degree is required for the Ph.D. degree. This may include a maximum of 24 hours credit for the thesis. Each student has an individual doctoral committee which advises the student in the formulation of an

approved plan of study for the degree. Candidates for the Ph.D. in mathematics must demonstrate, by examination, a reading knowledge of one foreign language, usually French, German or Russian.

The most important requirement for the Ph.D. degree is the preparation of an acceptable thesis. This thesis must demonstrate the candidate's ability to do independent, original work in mathematics.

Departments of Military Studies

Coordinator Smith L. Holt, Ph.D.

In agreement with the U.S. Air Force and the U.S. Army, OSU recognizes separate departments of Aerospace Studies and of Military Science as integral academic and administrative departments of the University. These two departments are administered within the framework of the College of Arts and Sciences. The two departments provide instruction under the basic and advanced Reserve Officers' Training Corps (ROTC) programs.

Scholarships

Both the Army and Air Force ROTC offer full scholarships each year for students enrolling in the program. ROTC scholarships provide full payment of tuition, fees and books and \$100.00 per month subsistence allowance. Applications for 4-year scholarships may be obtained through local high school principals or advisers and the ROTC departments. Information concerning 2- and 3-year scholarships (male and female) may be obtained by direct contact with the ROTC departments located on campus in Thatcher Hall. (Telephone 624-4131 for Army and 624-4255 for Air Force.)

Degree Programs

A Bachelor of Science degree in aerospace studies or military science is offered in the College of Arts and Sciences upon completion of 127 semester credit hours. It combines ROTC training with the College's general education and degree requirements and the opportunity to develop strong programs in a wide variety of other fields. The curricula for these degrees prepare the student for further professional work and for duty with the Armed Forces.

Flexibility

ROTC at OSU offers a variety of programs, giving the student considerable flexibility in charting a path to commissioning in the Army or the Air Force. Programs are designed so that individuals in all OSU colleges, departments and majors can tailor their academic/ROTC curriculum in order to attain commissioned status. Opportunities also exist in both Army and Air Force ROTC for the student to "test the water" early in his or her academic program by participating in basic familiarization courses. Those interested in learning more about ROTC at OSU, or in enrolling, are urged to contact the professor of Aerospace Studies or professor of Military Science in Thatcher Hall on campus.

Aerospace Studies

Professor of Aerospace Studies and Head Col. Albert M. Silva, M.A.

The Air Force ROTC basic program consists of one classroom hour and one leadership laboratory period per week for one credit hour per semester during the freshman and sophomore years. The advanced AFROTC program (junior and senior years) is open on a competitive basis to any student having two years of enrollment remaining. The advanced courses each include three classroom hours per week and one hour of leadership laboratory for three semester hours of credit. Class work and laboratory involvement are designed to prepare the student for his or her future role as a leader in the U.S. Air Force. No military obligation is incurred for non-scholarship students enrolling in the freshman and sophomore courses. Students in the advanced program must successfully complete at least three hours of English composition and a mathematics reasoning course. Those students accepting an AFROTC scholarship must successfully complete at least one semester of a modern foreign language.

Students (male and female) completing the advanced Air Force ROTC program are commissioned as second lieutenants in the U.S. Air Force. Candidates for flight training incur an active service duty commitment of five or six years, commencing with completion of flight training. Nonflying officers have a four-year commitment. During their initial active duty, officers compete for the opportunity to attain career status.

For those physically qualified and accepted as pilot candidates, AEROS 4554 is offered at no cost to the student. This course covers the ground school requirements for the FAA Private Pilot Examination, and also provides thirteen hours of flight training at the Stillwater Airport.

Military Science

Professor of Military Science and Head LTC Michael K. McWherter, M.A.

Students desiring to expand the scope of their education, while preparing for a dynamic and rewarding career as an officer in the United States Army, active duty, National Guard, or Army Reserve, choose the Army Reserve Officer Training program (ROTC) as an adjunct to their chosen field of study. With courses dealing in a wide range of subjects from leadership to tactics, taught both indoors and out, the Army ROTC program trains 75 percent of all officers commissioned each year.

The Army ROTC program consists of a basic course and an advanced course. Students desiring to see what the program is like may enroll in up to nine hours of military science with no commitment to the United States Army. During this basic course, emphasis is placed upon leadership, war gaming, individual tactics, rappelling, land navigation and survival. All lower-division ROTC courses are open to the entire university community regardless of year in school.

Students committing themselves to a commission in the United States Army are permitted to enroll in the Army ROTC advanced course upon completion of the basic course or equivalent. The advanced course consists of 10 hours of academic work taken during the junior and senior year. In addition, participation in a six-week summer camp is mandatory. The advanced course emphasizes further development of leadership skills, offensive

and defensive tactics, physical conditioning, ethics, military law, professional and basic military knowledge and skills. Additionally, advanced course students are responsible for use of required military skills as they act as assistant instructors during laboratory periods, plan leadership laboratories, plan and conduct field training exercises and are responsible for coordinating and supervising departmental extracurricular activities.

Students interested in the Department of Military Science are encouraged to visit with departmental faculty members at any time for further information concerning departmental course offerings and class sequence. A number of two- and three-year scholarships are available through the Department. Prior enrollment in military science is not a prerequisite for departmental scholarship application.

Music

Associate Professor and Head Gerald Frank, D.M.A.

The study of music at OSU is designed to increase the student's understanding and appreciation of music through the development of skills as listener, composer and performer. The student desiring a major in music chooses from the following: (1) Bachelor of Music (B.M.) in performance, (2) B.M. in instrumental/vocal music education, (3) B.M. with elective studies in business, and (4) Bachelor of Arts (B.A.) in music. In addition, the Bachelor of University Studies allows the interested music student to major in music while earning a second major in an outside field.

Professional instruction is provided for the student preparing for a career in performance; teaching of music in public school, college or private studio; and the music business. The OSU undergraduate degrees are also excellent preparation for church positions and for graduate school.

The student planning to major in music at the university level should consider his or her background carefully. It should include a strong interest in music during high school years and a talent for performance in vocal or instrumental music. Individual lessons, fundamental theory knowledge, and basic piano ability will also be helpful.

Opportunities are also available to the student not majoring in music. All ensembles (choirs, opera, marching band, wind ensemble, jazz bands and orchestra), individual lessons, and courses are open to the major and nonmajor alike and offer academic credit.

An active scholarship program provides assistance to majors as well as non-majors. Students are invited to write for audition information.

Music on campus yields an enriching flow of concerts and recitals by students and faculty members. The Department also supports an active extension program, providing opportunities for individuals outside of the University.

The Department of Music is accredited by the National Association of Schools of Music. Students wishing to major in music should contact the Department of Music to arrange for an entrance audition and interview.



Natural Science

Professor and Program Director, L. Herbert Bruneau, Ph.D.

Graduate Programs

This interdepartmental program leading to the M.S. degree is for science teachers and other individuals who desire a broader program than often given in departmental programs. The reduced emphasis on the methodology of research may more nearly meet the needs of many persons than a concentrated program in a specific area of the sciences.

Purpose. The goal of this program is to provide the student with a breadth of training in science and related subject areas, while concentrating in one area of science. While research methodology is not a principal component, a scholarly and creative activity is an essential part of the degree plan. Courses must be sufficiently advanced in the recognized discipline to provide contact with research in the discipline while providing a review of the fundamental principles involved.

Administration. The program is administered by the dean of the Graduate College with the assistance of the program director. A graduate advisory committee of three faculty members, one of whom will serve as the student's major adviser, will be named by the dean of the Graduate College for each student admitted to the program. The graduate advisory committee will be responsible for seeing that the plan of study for the degree is properly prepared and followed by the student, and must approve the topic and content of the creative and scholarly component, report or thesis.

Admission Requirements. The student must have a minimum of 30 semester hours of science, with biological, physical and earth sciences represented. An undergraduate grade-point average of 3.00 is required for unqualified admission. Students with a grade-point average below 3.00 but 2.50 or better may be admitted on a probationary basis. Students admitted on a probationary basis must receive a grade of "B" or better in at least 10 credit hours of course work at the 4000 or 5000 level in their first semester as graduate students.

Curriculum and Requirements. Three degree plans are available in this program. The student must complete a 30-credit-hour plan with a six-credit-hour research thesis, a 32-credit-hour plan with a two-credit-hour report, or a 36-semester-credit-hour plan with a well-defined creative and scholarly component if neither a report or thesis is written. A minimum of 21 credit hours taken at OSU must be at the graduate level (5000) in a recognized discipline of the biological, physical, or earth sciences.

Selected courses from science-related areas may be used on the plan of study with the approval of the graduate advisory committee and the dean of the Graduate College. No specific courses are required for the degree. However, not more than two-thirds of the courses for the degree may be taken in any one of the areas of biological, physical, or earth sciences.

Philosophy

Associate Professor and Head Edward G. Lawry, Ph.D.

Philosophy is an intellectual activity to be practiced and a subject matter to be studied. As an activity, philosophy seeks to analyze, evaluate, and often reformulate the ideas, principles and arguments by which experience is understood and explained and by which behavior is directed and justified. No area of experience or behavior—aesthetic, political, religious, scientific or moral—is immune to philosophical consideration. The writings produced by great philosophers are worthy of study as models of thought and as artifacts of historical influence and cultural significance. In this latter role philosophy is historically related to the development of every academic discipline.

Courses offered in philosophy fall into three general groups: broad introductory courses which cover a variety of topics, historical courses which proceed chronologically through a sequence of thinkers, and special topic or field courses. Some offerings combine the latter two characteristics. No undergraduate course is intended primarily for majors. Juniors and seniors often find that an upper-division philosophy course related to their area of concentration can supply needed breadth and depth to their studies.

Students may pursue work in philosophy as part of their general education, as a support to their major area of concentration, as a minor, as a major leading to a B.A. degree, as a second major or in connection with a graduate program. Philosophy majors have an excellent educational base from which to pursue careers in teaching, the ministry, law, government service and private business of many sorts. They have available to them one of the most flexible programs offered at the University, for the minimum philosophy requirements include only two lower-division introductory courses, two upper-division historical survey courses and 21 hours of additional unspecified philosophy courses numbered 3000 or above which permit up to 38 hours of related and elective study in other areas. A minor or a second major in philosophy will complement any other area of study. A philosophy minor requires 18 hours of unspecified philosophy courses, 12 of which must be numbered 3000 or above.

Graduate Programs

The Philosophy Department offers a Master of Arts degree in philosophy with two broad programs. Both programs include the alternatives of thesis (minimum of 30 credit hours including a maximum of six thesis credit hours) or non-thesis (36 credit hours of course work) programs. There is considerable latitude for the student, in consultation with his advisory committee, to design a program of study which meets his or her individual needs. More than a dozen members of the Graduate Faculty are directly involved in the program, making available a wide diversity of scholarly specialties. The degree work will be especially valuable to persons interested in pursuing predoctoral studies in philosophy, religious studies, or another area of the humanities, to persons who already possess an advanced degree and who wish to expand their field of professional competence, and to college graduates who simply wish to broaden their own educational horizons.

Prerequisite for admission to the programs are 24 semester credit hours (at least 18 at the upper division level) in philosophy or other humanities courses. At least 12 of these hours must be in philosophy and must include courses in the history of ancient, medieval and modern philosophy (PHILO 3113 and 3213 or equivalents). Each of the optional programs has a few additional prerequisites which are noted below. Students without the prerequisites, but otherwise admissible, may seek "qualified" status until the prerequisites are satisfied. Consult other sections of the *Catalog* for the general requirements of the Graduate College, including those on transfer credits. Both programs listed below require a four-hour written examination on selected major philosophers, to be taken near the middle of the student's course work. Determination of program of study, thesis topic (if any), and specific examination requirements will be made by the student and the three-member advisory committee.

Master of Arts in Philosophy.

1. Specific prerequisite is a course in logic (PHILO 1313 or 2303 or equivalent).
2. With thesis, a minimum of 18 credit hours in philosophy (including a maximum of six hours for thesis).
3. Without thesis, a minimum of 24 credit hours in philosophy (at least 15 of which must be in graduate seminars or research courses).

Master of Arts in Philosophy-Humanities.

1. Specific prerequisites are at least six credit hours of introductory courses in the humanities of the ancient, medieval, and modern periods (IDS 2103 and 2203 or equivalents).
2. With thesis, a minimum of nine credit hours in philosophy and 15 credit hours in other humanistic areas (such as literature, the fine arts, religious studies, and cultural history) in addition to six credit hours for thesis.
3. Without thesis, a minimum of 18 credit hours in philosophy and 18 in other humanistic areas.

In the case of a student pursuing the second program at least one member of the advisory committee must be from a department in the related field. The head of the Philosophy Department, in consultation with the head of the department in the related field and the student, will appoint the student's principal adviser and other members of the advisory committee. A student may also, in accordance with the rules of the Graduate College, select a graduate minor in connection with the first program, thus permitting a concentration of additional work in an area such as sociology, political

science or mathematics. In this case the advisory committee would normally include a member from the minor department.

Through cooperation with the College of Education, a student can earn the degree of Doctor of Education in higher education with special emphasis in philosophy. General requirements concerning the Ed.D. in higher education are listed in the "Doctor of Education" and "Educational Administration and Higher Education" sections. The basic prerequisite is a significant background in philosophy (ordinarily at least 24 semester hours). Depending on the student's record, about 40-60 credit hours of philosophy, excluding thesis, are normally required.

Departmental acceptance is required for admission to the M.A. program and the Ed.D. program in higher education with emphasis in philosophy. Admission to the latter program must be initiated through the Department of Educational Administration and Higher Education. Persons who meet the stated prerequisites for the M.A. degree are encouraged to apply directly to the Graduate College for admission, indicating the specific program they wish to pursue. Applications will be forwarded to the Philosophy Department. Persons interested in the M.A. program but who do not meet the prerequisites should, for their own benefit, contact the head of the Philosophy Department prior to application. The Department has a small number of graduate teaching assistantships available.

Students pursuing a master's or doctoral degree in another field may elect philosophy as a graduate minor. Selected courses in philosophy can broaden and complement work in such areas as history, English, sociology, psychology, political science, economics, and education.

Physics

Professor and Head H. Larry Scott, Ph.D.

Cosmology and the physical origin of the universe, the use and development of lasers, the nature of the fundamental particles that make up an atomic nucleus, the properties and development of new and exotic materials, and the formulation of predictive theoretical models to describe nature are some of the subjects pursued by physicists. A professional physicist needs to possess critical skills of observation and evaluation. The development of these skills in both experimental and theoretical work provides the focus of the undergraduate program and prepares a student for a career in either applied or pure physics. Physics majors acquire a versatility which makes them highly competitive for careers in industrial research and development, national laboratories and academia.

The physics program provides a common basis of physics, mathematics and other sciences for the first two undergraduate years. A physics major continues beyond these courses in an individually tailored program in the Department's options program. The final two years are designed to suit the student who anticipates graduate research, as well as those who will seek employment immediately after graduation. The choices offered to undergraduates are in the form of physics programs which reflect their career goals. Programs exist in pure physics, materials science, biophysics, engineering physics, chemical physics

and geophysics. Many of these include selected courses in engineering, computer science, biological science and geophysics. With this versatility students can choose (in consultation with their advisers) a program which will suit their evolving career goals in the latter part of their undergraduate studies. Continued communication, beginning with the student's first semester in the Department of Physics establishes a productive rapport between the physics major and his or her faculty adviser. A physics minor is also possible and the requirements can be obtained from the department head.

Graduate Programs

Prerequisites. Thirty semester hours of physics above the basic course work and mathematics courses through advanced calculus or differential equations are required.

The Master of Science Degree. The following physics courses or their equivalents are required: PHYS 4113, 4423, 5113, 5313, **5413, 5453, 5613.** Many of the above specified courses will normally have been taken in the student's undergraduate work. Those not taken at that time and any other work necessary to complete them must be taken during the course of the M.S. degree work. The total number of credit hours allowable for those courses toward the M.S. degree is established in the general requirements for the degree. In addition to these courses certain others will be required as determined by the area in which the student chooses to write the thesis. For example, if the chosen area is solid state physics, the student will normally be expected to complete the PHYS 5663-5713 sequence.

Six semester credit hours of mathematics past the entrance requirements are recommended and 18 semester hours of physics are required. A maximum of six credit hours of PHYS 5000 may be applied toward the M.S. thesis. The student must successfully defend the thesis in an oral examination.

The Doctor of Philosophy Degree. Prior to the appointment of the advisory committee, as described in the general requirements of the Graduate College, a comprehensive written examination must be taken. This examination will cover the content of the course work required up to and including the M.S. degree and will be given once a year. It will be given in four parts of three hours each. The results of this examination will be included in a review by the Department of Physics to determine whether the student should enter upon a Ph.D. degree program.

In addition to those courses required for the M.S. degree, PHYS 5213 and four of the following six courses must be completed under the student's final plan of study: PHYS 5133, 5263, 5663, 5713, 6313, 6713. Additional courses reflecting the candidate's specialization will normally be required by the advisory committee. A minimum of two-thirds of the graduate course credits must be in physics. No more than six credit hours of physics at the 4000 level can be counted toward graduate credit and no more than 12 total credit hours in all subjects at the 3000 or 4000 level can be counted toward graduate credit. Ninety semester hours of credit beyond the bachelor's degree are required. This includes credit for the dissertation which may be used to satisfy a maximum of one-half of the total semester hour requirements. Courses taken at another institution will be evaluated by a faculty committee to determine whether any requirements have thereby been previously met.

The most important single requirement for the Ph.D. in physics is the presentation of an acceptable dissertation which represents original research work by the student and which demonstrates the student's ability to do independent study as well as to plan and carry out future research in his or her field.

Political Science

**Associate Professor and Interim Head
Joseph W. Westphal, Ph.D.**

Political science is the study of politics and government at the local, state, national and international levels. It is concerned with struggles for power and the exercise of power in the form of institutions, laws and public policies.

Political science seeks to reveal the patterns of behavior associated with politics, to discern the decision-making process in government, to explain the functioning of political and governmental institutions, to appraise alternatives to public policy and to assess government's role in society.

The principal fields of study in political science are political theory, public law, comparative politics, international relations, public administration, public policy, and American political behavior. Students may receive the Bachelor of Arts degree in political science with a concentration in any of the fields of study. The Bachelor of Science degree in political science is offered with options in public affairs-international public administration, public affairs-public law and legal systems, and public affairs-paralegal.

Political science graduates enjoy a variety of career opportunities-staff positions with international, federal, state and local government agencies, teaching positions in college and high school, policy analysis positions with governments, businesses, civic groups and foundations, and in journalism, public relations, partisan politics, and, via law school, the legal profession.

Graduate Programs

The Department of Political Science offers a program leading to the Master of Arts degree in political science. Candidates for the M.A. degree may major in political science (Plan A or B) or earn a concentration in public administration (Plan C). The program is designed to prepare men and women for future work in Ph.D. programs as well as policy analysis, general administration and public management for careers in government, the nonprofit sector, the private sector and research organizations.

Admission Requirements. Applications for admission are accepted at any time; however, applications for assistantships or summer enrollment are due April 1.

Admission shall be limited to applicants showing good potential for success in professional graduate study and public service. Final judgment on admission shall be based on the following materials:

1. Two letters of recommendation from instructors or supervisors in position to evaluate the applicant's past academic or job performance.
2. Test scores from the aptitude part of the Graduate Record Examination.
3. A 3.00 overall grade-point average on a 4.00 scale or a **3.25 in the last four semesters of undergraduate course work.**

4. A minimum of 15 semester or equivalent quarter hours in political science or a closely related discipline. Applicants to the public administration program may have the prerequisite reduced for management experience.
5. Students for whom English is a second language must score a minimum of 575 on the Test of English as a Foreign Language (TOEFL). Results of the TOEFL examination must be submitted to the Graduate College by March 1 for fall enrollment.

Degree Requirements. In addition to the general requirements of the Graduate College, requirements for the Master of Arts degree with a major in political science are listed below.

Plan A:

1. A minimum of 24 semester credit hours in political science or closely related subjects.
2. A comprehensive written examination in three of the following fields of concentration: political theory, comparative politics and government, public law, international relations, American politics and government, public administration, public policy or an outside related discipline.
3. An acceptable thesis and successful oral defense before the candidate's committee.

Plan B:

1. A minimum of 33 semester credit hours in political science or closely related subjects.
2. A comprehensive written examination in three of the following fields of concentration: political theory, comparative politics, public law, international relations, American politics, public administration, public policy or an outside related discipline.
3. A master's paper approved by the candidate's committee.

Plan C (concentration in public administration):

1. A minimum of 36 credit hours in political science or closely related subjects as prescribed by the departmental adviser, which includes, in part, four core courses (12 credit hours), and six courses in an area of concentration (18 credit hours).
2. Satisfactory completion of the creative component, which includes as part of the 36 credit hours, an internship (three-six credit hours) and a research paper (three credit hours). In-service students may waive and substitute approved course work for the internship.
3. A three-hour written comprehensive examination to be administered in the last semester of the student's program.

Pre-law. Many degrees are applicable. See *Arts and Sciences preprofessional degree programs*.

Premed and Pre-vet. Many degrees are applicable. See *Arts and Sciences preprofessional degree programs*.

Psychology

Associate Professor and Head Vicki Green,
Ph.D.

Undergraduate study in psychology provides a background which may be of value to students in personal, social, educational and vocational situations. Many students are better able to understand and deal with their own behavior and that of others as a result of such training. Moreover,

the course of study involves examination of some of the major social problems of our time and explores ways of coping with these problems.

A bachelor's degree in psychology is useful in a wide number of occupations in business, education and industry. The range of positions obtained by graduates covers almost all occupations requiring direct personal contact with other people. Some examples are supervision, training, sales, public relations and interviewing. Also included are positions with city, state and federal agencies, and in applied research. Although there is no licensure or certificate to teach psychology in the schools, it is possible to get a teaching certificate or licensure in social studies education with endorsement in psychology while pursuing a major in psychology. Persons interested in such teaching should contact the Office of Teacher Education. (See "Teacher Education Programs" in the "College of Education" section of the *Catalog*.)

Graduate Programs

Employment in the professional field of psychology almost always requires a graduate degree. Psychologists with advanced degrees have relatively exclusive claim to some semiprofessional and professional positions.

The Department of Psychology offers programs of study leading to the degrees of Master of Science and Doctor of Philosophy.

Students interested in mental health who plan to terminate graduate study at the master's level should apply for the mental health specialist program. Prerequisites include introductory psychology, abnormal psychology, and psychological testing.

Students applying for the Master of Science program should have the following prerequisites: introductory psychology, research methods in psychology, physiological psychology, and experimental psychology. In addition to meeting the general requirements of the Graduate College, for completion of the Master of Science, students must also:

1. Complete both semesters of a proseminar in general psychology and both semesters of psychological research methods along with other course credits totaling 32 credit hours.
2. Perform a satisfactory research project, supervised and reviewed by appropriate faculty members.

Following the completion of the master's degree, the student may be admitted to doctoral status in clinical psychology, experimental psychology, or social psychology.

Religious Studies

Professor and Head Kyle M. Yates, Jr.,
Th.D.

Courses in religious studies are a vital part of a liberal arts education. The field involves the objective study of religious belief, literature and practice around the world. Opportunity is given for serious and objective study of these aspects in relation to major religions of past and present cultures. Special attention is given to the historical bases of world religions as well as to their effect upon present-day societies, in both the East and West. The courses offered are varied enough for concentrated work in several world religions, biblical studies, religious thought, and religion and culture.

Courses are open to all students without regard to personal views or affiliations. No attempt is made to indoctrinate or to force a particular view upon the student. Emphasis is always placed on the academic study of religion rather than the practice of a particular form of religion.

The undergraduate courses enable students to satisfy humanities requirements and also provide an excellent background for many types of graduate professional programs. The wide variety of course offerings makes possible quality preparation for further work in seminaries and graduate schools. The training and experience of the faculty in varied academic traditions both in this country and abroad make possible the broadest type of counseling on advanced programs leading to careers in religion.

A degree program in religious studies is available for the student desiring a major or minor in the field of study. Interdisciplinary approaches provide for study in the field of religion either as preparation for further advanced work, as specific preparation for teaching, or as an attempt to understand the phenomenon of religion in its complexity.

The curriculum is not designed exclusively or even primarily for those seeking careers in religion. It meets the need of all who desire a well-rounded education which explores and appreciates the human search for deeper meaning to finite life in terms of relationship to the infinite.

Sociology

Professor and Head Charles Edgley, Ph.D.

Sociology is the study of people as they live their lives in society. The emphasis is on understanding why people act as they do in a particular society, community or social group.

Many different points of view are represented in the departmental faculty. Some believe that a scientific explanation is central to understanding people in society; others believe that human values and subjective understandings should be the major emphasis in sociology. In all cases, there is an agreement that sociology is an exciting field of study.

The courses in sociology are designed to help the student understand the influence of society on individuals, apply this understanding to social issues, and provide the technical skills needed to do both. Topics covered include anthropology, corrections, social problems and deviance, research methods, social organization, social psychology, social work and theory. Many undergraduate majors elect to have a supervised work-related intern experience in a social agency of their choosing. A full-time adviser is available to assist undergraduate students in the selection of courses and to answer their many questions related to career planning. Faculty members are also available to assist and advise students.

B.A. and B.S. degrees are offered in sociology. Both B.A. and B.S. degrees include programs in corrections, pre-social work, social gerontology, juvenile treatment and child services. The general sociology degree has career paths including social aspects of law, social aspects of medicine, organizations and administration, social research and analysis, urban/population trends and issues, and minorities/women's studies.

Anthropology

Anthropology is the study of humankind in all its similarities and differences, both biological and behavioral. As an academic discipline it covers a wide range of subject matter ranging from fossil remains related to early human forms and the biological characteristics of contemporary human populations (physical anthropology) to scientifically excavated remains of past societies (archaeology) to behavior within contemporary human societies (cultural anthropology). Offerings in anthropology provide students with a basic introduction to the ideas and principles found in these three subdisciplines.

Regular course offerings include an emphasis on North American Indian culture and archeology, women's roles in different cultures, and aging from a cross-cultural perspective. Other courses deal with anthropological methods and theory.

Students wishing to emphasize anthropology in their studies may take a B.A. or a B.S. degree in sociology with an option in anthropology.

Graduate Programs

The Department of Sociology offers the Master of Science and Doctor of Philosophy degrees. Programs are available to prepare students for appointments to the staffs of sociology departments in colleges and universities, and for research positions in universities, businesses, social agencies, and various levels and units of government. The Department offers concentrations in social psychology, deviance/social problems, social organization, theory, methods-statistics, corrections/criminology, social ecology/demography, social gerontology, anthropology, family, and urban studies.

The Department also offers a Master of Science degree in corrections. This program is suitable for students wishing to specialize in juvenile or adult corrections, as administrators, case managers, counselors, researchers, and as probation and parole supervisors.

The Department offers employment to qualified graduate students as graduate assistants who may teach introductory courses, assist senior professors in the conduct of courses, or participate in ongoing research programs. These teaching and research experiences constitute an invaluable part of the student's professional preparation.

Students seeking admission to graduate programs in the Department must be accepted by the admissions committee, chaired by the graduate student adviser, prior to official admittance and meet the following requirements:

1. Master's level students in sociology must have earned an overall grade-point average of 3.00 (on a 4.00 scale) in an undergraduate program in sociology or a closely related field. Students seeking admission to the Ph.D. program must have earned an overall grade-point average of 3.50 (on a 4.00 scale) in the master's program in sociology or a closely related field. Deficiencies in either degree program will be corrected through course work, without degree credit for such courses, as determined by the graduate student adviser and admissions committee.
2. Master's level students in corrections must have earned an overall grade-point average of 3.00 (on a 4.00 scale) in the undergraduate program, and must have at least 12 semester hours credit in sociology or related disciplines.

3. Three recent letters of reference from academic persons qualified to evaluate the applicant's ability to perform graduate work must be received.
4. All Ph.D. applications should be accompanied by a statement of professional goals and evidence of academic ability (such as thesis, term papers, etc.)

Applicants who have deficiencies in any of the above areas, may submit the results of the Graduate Record Examination in support of their application, and that score may be substituted at the option of the faculty.

Detailed information on each program is available by writing to the Department or coming by the departmental office and requesting a Graduate *Student Manual*.

Speech Communication

Professor and Head James Hughey, Ph.D.

The Department of Speech Communication affords a variety of opportunities for students who wish to become involved in the excitement of a changing world. Not only does the Department offer academic subjects leading to both undergraduate and graduate degrees, but students are afforded an opportunity to gain practical experience in interpersonal and public communication.

In speech communication, students are prepared for positions in industry and business and are qualified to work with interpersonal communication problems. Graduate work in this area increases the student's career opportunities in the field of communication consulting. In addition, the Department's concern with related areas, such as sociology, business and psychology, allows the admission of graduate students with undergraduate preparation in some of these fields.

Graduate Programs

Prerequisites. To enter the program, the student should have a minimum of 12 semester credit hours of undergraduate courses in speech communication or the equivalent.

Admission Requirements. Applicants normally should have at least a "B" grade-point average at the undergraduate level and strong recommendations from those familiar with the student's previous academic background. Beyond that, the number of students admitted will depend on the number of places available in the program.

Program Requirements. The complexity of today's society requires an individual capable of solving a wide range of problems. In order to meet this need, the speech communication graduate program aims at producing: (1) individuals capable of fulfilling the role of a communication consultant or interventionist within governmental, business and industrial, public service, educational and community organizations; (2) individuals capable of using methods and procedures of the behavioral sciences in investigating and solving practical as well as theoretical problems in communication; (3) individuals with the background to pursue doctoral programs in communication; and (4) competent teachers of communication for two-year and four-year colleges as well as the common schools.

The student may earn the Master of Arts degree under one of the following plans:

Plan I -A minimum of 24 semester hours of speech communication courses and a thesis for which six credit hours is earned.

Plan II -A minimum of 30 semester hours, no fewer than 24 of which must be in speech communication, and a project for which two hours may be earned.

Plan III -A minimum of 36 semester hours, no fewer than 24 of which must be in speech communication, with no thesis or project.

The plan that a student chooses must be approved by the graduate faculty of the Department.

Examinations. Every student must pass a written and oral comprehensive examination. The student following Plan I or II must also pass an oral examination over his or her thesis and related materials.

Speech and Language Pathology and Audiology

Professor and Head John M. Panagos, Ph.D.

The Department of Speech and Language Pathology and Audiology prepares students through the master's level to serve handicapped individuals of all ages who exhibit speech, language and/or hearing disorders. The undergraduate program is a preprofessional degree program. It first emphasizes the study of the development and functioning of the individual who presents normal speech, language and hearing. It also stresses academic and clinical practicum experiences in the nature, symptoms and treatment of those who possess various kinds of communication disorders.

The master's level program is designed to provide students with intensive course work in the various communication disorders and exposure to a wide variety of challenging clinical activities. This includes a full time, off-campus clinical internship for at least eight weeks which serves as an excellent transition from on-campus practicum to an actual professional position after graduation. Students who graduate from this Department are prepared to take positions in public schools, hospitals, community speech and hearing centers, private practices and other related settings. All graduates meet the academic and practicum requirements for the Certificate of Clinical Competence of the American Speech-Language-Hearing Association and licensure by the state in speech and language pathology. In addition, almost all students elect to earn the state teaching certificate. The program is nationally accredited.

Graduate Programs

Prerequisites. Other than the general requirements of the Graduate College, no other prerequisites are required for the Master of Arts degree. The amount of course work taken at the undergraduate level in speech and language pathology and related areas will determine the amount of time required for the degree.

Admission Requirements. Applicants should have a grade-point average of 3.00 ("B") in all work and at least a 3.00 in the major, strong letters of recommendation from those familiar with the student's previous academic background, and GRE scores acceptable to the Graduate Faculty. Beyond that, the number of students admitted will depend on the number of places available in the program.

Program Requirements. The program leading to the Master of Arts in speech provides a thorough exposure to the nature and causes of communication disorders and to clinical procedures, including extensive practical experience within the OSU clinic and in a variety of off-campus settings, including a full-time internship for at least eight weeks toward the end of the program. All practicum experiences are supervised closely by faculty members or by other highly qualified and certified speech and language pathologists and audiologists. The program leads to the certificate of clinical competence of the American Speech-Language-Hearing Association, state teacher certification, and state licensure in speech pathology.

The student may earn a degree under one of the following plans:

Plan I -A minimum of 31 semester credit hours in courses that examine the nature, causes and treatment of communication disorders and related areas, and a minimum of nine semester credit hours in clinical practicum courses. This includes an eight-week off-campus internship for which the student may receive up to six semester credit hours.

Plan II -A minimum of 31 semester credit hours in courses that examine the nature, causes and treatment of speech communication disorders and related areas including six credit hours for a thesis; a minimum of nine semester credit hours in clinical practicum courses including the eight-week internship.

The plan that a student follows will be determined by the student in consultation with the adviser and with the approval of the graduate faculty in the area of speech and language pathology. Regardless of the plan chosen the student must complete the academic and clinical practicum requirements necessary for clinical certification by the American Speech-Language-Hearing Association. Further, these plans assume that the student will enter with an undergraduate background comparable in depth and breadth to that obtained at Oklahoma State University. For students with other backgrounds, the listed plans may be altered quantitatively and/or qualitatively in order to better accommodate the educational needs of the student.

Examinations. Students following Plan I must pass comprehensive examinations before graduation. Students following Plan II will not be required to take comprehensive written examinations, but must pass an oral examination over the thesis. All students are required to submit a report at the termination of the internship which critically evaluates the experience.

Statistics

Professor and Head J. Leroy Folks, Ph.D.

Statistics is the science of learning from data. It is concerned with the development of theory and with the application of that theory to the collection, analysis and interpretation of quantitative information.

Because statistics is important in many scholarly disciplines, a degree in statistics provides the opportunity to enter not only the statistics profession but also many other fields which make extensive use of statistics. The areas of application include agriculture, the biological sciences, engineering, the physical sciences, the social sciences, education, business and home economics, among others. Statistics also promises to be important in emerging endeavors such as pollution and environmental research, energy utilization and health-care administration.

Those who pursue the study of statistics should be interested in scientific inquiry and should have a good mathematical background. In addition it is desirable that they have a genuine interest in some other subject which uses statistics.

Careers in government, industry and education, involving the disciplines previously mentioned, are open to the statistics graduate. In government and industry a statistician usually serves as a researcher or as a consultant to research scientists and decision-makers. In education, of course, the teaching function is added to those of research and consultation. In almost all careers, the statistician uses the computer.

The Statistical Laboratory operates within the Department to provide statistical consulting to researchers—both faculty and student—across the campus.

The Department of Statistics offers the B.S. and M.S. degrees to those interested in applications of statistics, and the Ph.D. degree to those who wish to make original contributions to the theory of statistics.

Graduate Programs

Admission Requirements. It is necessary to have an undergraduate degree, not necessarily in statistics or mathematics, to begin a program of study toward the master's degree in statistics. In some instances, it may be advantageous to have an undergraduate degree in another field. However, the student should have acquired a good mathematical background as an undergraduate. This should be equivalent to the required mathematics courses in the bachelor's program (MATH 2265, 2365, 2613, 3013, 4013). Students admitted to the program with deficiencies will be required to remedy such deficiencies.

The Master of Science Degree. The Master of Science degree in statistics may be completed by following one of the three plans listed in the "Graduate College" section. Normally, the all-course work plan will be initiated at the suggestion of the faculty. Each student will be required to attain an introductory knowledge of some field of application outside of statistics, mathematics and computer science. This requirement may be satisfied by having taken a three-hour graduate course in an approved field of statistical application. Each student is required to have completed COMSC 2113 or to have demonstrated competence in a procedure-oriented language such as FORTRAN.

The Doctor of Philosophy Degree. The Ph.D. requires the completion of 90 hours beyond the B.S. degree. A maximum of 30 of these credit hours may be earned by research for the dissertation. Each student will be required to attain an introductory knowledge of some field of application which may be satisfied by taking two three-hour graduate courses outside the fields of statistics, mathematics and computing. Each student is required to have completed COMSC 2113 or to have demonstrated competence in a procedure-oriented language such as FORTRAN.

Theater

Professor and Head Kenneth Cox, Ph.D.

The program in theater provides the student with course work and practical experience in all areas. The degree programs are broadly based with academic, humanistic and artistic approaches to the subject matter. Training typically involves not only the most obviously theatrical disciplines such as acting, but also considerable technical skills, literary and historical knowledge, artistic expression, and self-discipline.

Study of theater can lead to many careers besides those in the performing arts. Fields where theater study can be especially helpful include business management, salesmanship, law, politics, teaching, counseling, ministerial professions, or any career area where self-awareness and effective personal communication are essential.

Ambitious seasons of varied productions offer practical experience for both majors and non-majors. A vigorous student organization, the University Theater Guild, develops theater-related projects and provides many services to the production program.

Students with a major interest in theater may elect either a Bachelor of Arts or a Bachelor of Science degree. Students interested in preparing to teach theater and speech in grades 7-12 may choose B.A. or B.S. degrees in speech/drama education. A strong component of theater courses may also be included in the individualized curriculum leading to the Bachelor of University Studies degree.

Graduate Programs

The Department offers work leading to the Master of Arts degree in speech. The enrollment in the program is typically small, allowing a great deal of individual contact with faculty members and considerable latitude in developing the plan of study.

Students are trained in all aspects of the discipline with the aim of producing graduates: (1) who will be effective teachers and artists in two- and four-year colleges as well as secondary schools; (2) who are artists and/or technicians highly qualified for professional positions; or (3) who have the appropriate background to pursue further study.

The Master of Arts degree may be achieved in accordance with any of the three plans described in the section "Master's Degree Programs" in the "Graduate College."

A limited number of teaching and technical assistantships are available to highly qualified students. Information and application forms may be obtained from the department head.

Undergraduate credentials should be referred to the department head for evaluation to assist advisement and to determine any possible deficiencies which will affect the admission status.

Zoology

Professor and Head Jerry Wilhm, Ph.D.

The Department of Zoology offers degree programs in biological science, physiology, wildlife ecology and zoology.

Biological Science

A B.S. degree in biological sciences is available for students wishing to obtain a broad program encompassing all of the life sciences. By including appropriate course work in their programs, students can obtain licensure to teach in the secondary schools. Requirements for admission to dental, medical and other health-related professional schools can be met through the biomedical option of the biological science degree.

Physiology

Physiology is a division of zoology that deals with the mechanisms and controls of the life processes of animals including man. Since its goal is to explain these processes on the basis of chemical and physical laws, the students of physiology must obtain a strong background in both the physical and biological sciences. The bachelor's degree in physiology requires participation in undergraduate seminars and course work in general biology, genetics, gross and microscopic anatomy, algebra, trigonometry, general physics, general chemistry, organic chemistry, biochemistry, and quantitative chemistry, as well as course work in mammalian and cellular physiology and pharmacology.

The undergraduate degree in physiology is intended primarily as preparation for graduate school or a medically-related professional school (human or veterinary). With its relatively large number of free electives, the B.S. degree in physiology is also an excellent liberal arts experience.

Wildlife Ecology

The wildlife ecology program involves comprehensive study in the conservation of renewable natural resources, emphasizing an optimum balance between wild animal populations and habitat requirements. Courses in the wildlife program fulfill the requirements for many other applied and professional careers.

Undergraduates majoring in wildlife ecology may choose from three options: communications, fisheries, and management/research. The management/research option emphasizes applied wildlife ecology, and offers the best preparation for graduate study. Under the communication option, biological training is combined with course work in journalism, social sciences and the uses of electronic media. All three options lead to a B.S. degree in wildlife ecology.

Assisting in graduate training is the Oklahoma Cooperative Fish and Wildlife Research Unit. Cooperatively funded by the Oklahoma Department of Wildlife Conservation, the U.S. Fish and

Wildlife Service, the Wildlife Management Institute and Oklahoma State University, this unit conducts research and demonstration projects and disseminates information obtained through such research. The unit functions in cooperation with the Department of Zoology in which unit leaders hold academic rank and serve as members of the faculty.

Graduate Programs

Programs of research and study leading to the M.S. and Ph.D. are offered in wildlife ecology.

Prerequisites. Applicants must have completed a baccalaureate degree including 40 semester hours in biology and related areas. Applicants must complete the Graduate Record Examination including the advanced test in biology.

The Master of Science Degree. Students must take an oral examination over biological principles administered by the advisory committee during the first six months in order to diagnose weaknesses and to help in formulating a plan of study. In addition to the general requirements, students are required to show competence in a research technique by taking additional courses in statistics, mathematics or computer science. Students must prepare a research proposal and complete either a thesis or a report. If a report is written, 32 credit hours are required. The plan of study must include at least two credit hours in seminar.

The Doctor of Philosophy Degree. Students must take an oral examination over biological principles administered by the advisory committee during the first six months in order to diagnose weaknesses and to help in formulating a plan of study. In addition to the general requirements, students are required to show competence in a reading knowledge of a foreign language and/or certain research techniques by taking additional courses in statistics, mathematics or computer science. This requirement is in addition to the competence demonstrated for the M.S. degree. The plan of study must include at least four credit hours in a seminar. Departmental courses at the 3000 level are generally recommended only to make up deficiencies. Students must pass written and oral qualifying examinations, prepare a research proposal, and complete a dissertation based on original research and worthy of publication. Students must complete 30 graduate thesis credits which may include a maximum of six credit hours from the M.S. degree. Candidates must present a public seminar based on the completed dissertation.

Zoology

Zoology, the study of animals, provides a background for many applied and professional careers. Environmental and evolutionary biology receive major emphasis in the zoology program. Since most of the important biological problems facing man today are ecological, the Department has developed a broad program with emphasis on ecology.

The B.S. degree curriculum in zoology is designed to provide a background of basic biology and some specialization in that area of zoology in which the student wishes to develop his or her career. To become a zoologist the student must have a good foundation in the related fields of chemistry, physics, mathematics, statistics, and botany. The B.S. degree in zoology requires courses in cell biology, ecology, evolution, genetics, and vertebrate and invertebrate zoology.

Graduate Programs

Programs of research and study leading to the M.S. and Ph.D. are offered in zoology with concentration and emphasis in aquatic ecology and vertebrate zoology. Specializations of faculty include animal behavior, cellular and molecular biology, developmental biology, ecology, evolution, fishery biology, invertebrate zoology, limnology, ichthyology, herpetology, ornithology, mammalogy and physiology.

Prerequisites. Applicants must have completed a baccalaureate degree including 40 semester hours in biology and related areas. Applicants must complete the Graduate Record Examination including the Advanced Test in Biology.

The Master of Science Degree. Students must take an oral examination over biological principles administered by the advisory committee during the first semester in order to diagnose weaknesses and to help in formulating the plan of study. In addition to the general requirements, the student is required to show competence in a research technique by taking additional courses in statistics, mathematics, or computer science. Students must prepare a research proposal and complete either a thesis or a report. If a report is written, 32 credit hours are required. The plan of study must include at least two credit hours in a seminar.

The Doctor of Philosophy Degree. Students must take an oral examination over biological principles administered by the advisory committee during the first six months in order to diagnose weaknesses and to help in formulating a plan of study. In addition to the general requirements, students are required to show competence in a reading knowledge of a foreign language and/or certain research techniques by taking additional courses in statistics, mathematics or computer science. This requirement is in addition to the competence demonstrated for the M.S. degree. The plan of study must include at least four credit hours in a seminar. Departmental courses at the 3000 level are generally recommended only to make up deficiencies. Students must pass written and oral qualifying examinations, prepare a research proposal, and complete a dissertation based on original research and worthy of publication. Students must complete 30 graduate thesis credits which may include a maximum of six credit hours from the M.S. degree. Candidates must present a public seminar based on the completed dissertation.

Programs of Study. Programs of study leading to the M.S. and Ph.D. are offered in zoology with an emphasis in physiology. The programs are designed to develop and train physiologists for teaching and research positions in universities or colleges; research positions in government, foundations, or industry; and related administrative positions. Specializations of faculty include cellular physiology, comparative endocrinology, comparative gastro-intestinal physiology, developmental biology, ecotoxicology, invertebrate physiology, membrane biology, and physiological ecology.

No particular undergraduate major is preferred, but the student should have completed most of the following: histology or embryology, comparative anatomy, introductory physiology, one year of organic chemistry, quantitative analysis, biochemistry or cell and molecular biology, one year of physics, and calculus.