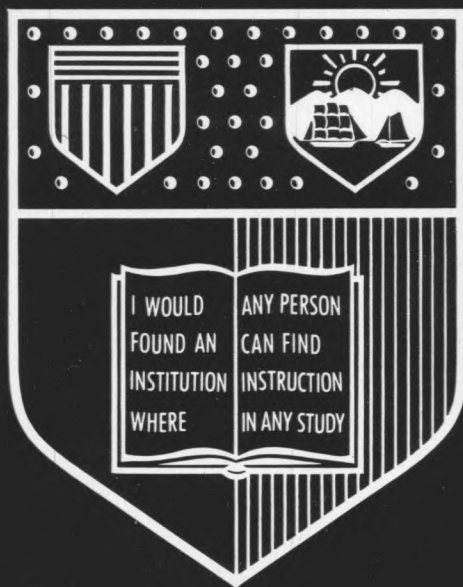
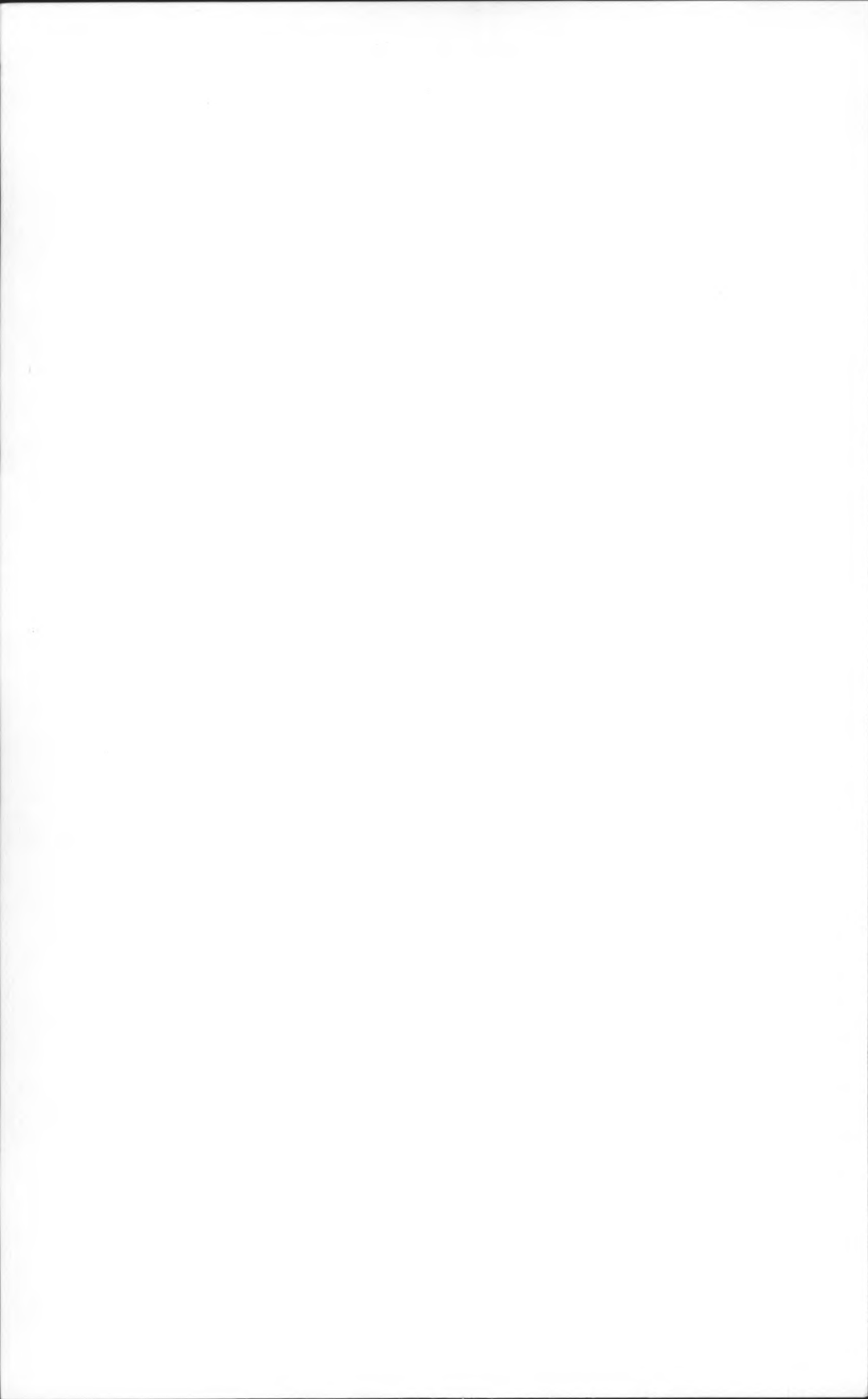


Cornell University Announcements



New York State
College of
Veterinary Medicine



Cornell University

New York State College of Veterinary Medicine

1977-78

A Statutory College of the State University
at Cornell University, Ithaca, New York

Cornell University Announcements

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Cornell Academic Calendar

1977-78

Registration, new students	Thursday, September 1
Registration, continuing and rejoining students	Friday, September 2
Fall term instruction begins	Monday, September 5
Thanksgiving recess:	
Instruction suspended, 1:10 p.m.	Wednesday, November 23
Instruction resumed	Monday, November 28
Fall term instruction ends, 1:10 p.m.	Saturday, December 10
Final examinations begin	Thursday, December 15
Final examinations end	Friday, December 23
Registration, new and rejoining students	Thursday, January 19
Registration, continuing students	Friday, January 20
Spring term instruction begins	Monday, January 23
Spring recess:	
Instruction suspended, 1:10 p.m.	Saturday, March 18
Instruction resumed	Monday, March 27
Spring term instruction ends, 1:10 p.m.	Saturday, May 6
Final examinations begin	Monday, May 15
Final examinations end	Tuesday, May 23
Commencement Day	Monday, May 29

The dates shown in the Academic Calendar are subject to change at any time by official action of Cornell University.

In enacting this calendar, the University has scheduled classes on religious holidays. It is the intent of the University that students missing classes due to the observance of religious holidays be given ample opportunity to make up work.

Announcement

Contents

2	Academic Calendar
5	The College of Veterinary Medicine
6	Research Facilities
8	Admissions
13	Finances
13	Financial Aids
17	Requirements for Graduation
18	Honor Societies
19	Careers for Veterinarians
20	Health Services and Medical Care
21	Housing and Dining Facilities
21	Conduct of Students
25	Description of Courses
43	Register
55	Index
56	List of Announcements

The courses and curricula described in this Announcement, and the teaching personnel listed herein, are subject to change at any time by official action of Cornell University.



The College of Veterinary Medicine

History of the College

From the very beginning of the University with the issuance of a charter in 1865, the founder, Ezra Cornell, insisted that a chair of veterinary medicine be established. His experience as an owner of purebred livestock had taught him the importance of animal health and he instructed Andrew D. White, the first president, to seek out the best qualified man to teach courses in veterinary medicine and surgery. It was the first time that veterinary science had been granted equal rank with other sciences in an American university.

President White secured the services of James Law and the appointment was confirmed on August 4, 1868 by the Board of Trustees. A young, well-educated Scotsman, Law had graduated from the Edinburgh Veterinary College, studied under the great medical teachers of the day (William Turner in human anatomy and Joseph Lister in the principles and practice of surgery), and attended veterinary schools on the Continent. He had also taught at the New Veterinary College in Edinburgh and the Albert Veterinary College in London.

When classes began on October 7, 1868, Dr. Law's office was on the second floor of Morrill Hall, the first University building to be completed. A small museum and pharmacy were located in the basement. In Law's words, "Our clinical building was furnished by the campus grass, walled in by the great dome of God's blue sky, and watered and disinfected by the life giving rays of the sun, and the ozone from hill and dale, lake and forest. We had the common privileges that many a veterinarian has to avail himself of in his daily rural practice."

During the academic year 1869-70 a fairly complete course in veterinary medicine was taught by Professor Law to a class of about twenty. Of this group, four were graduated after four years of study with the Cornell degree of Bachelor of Veterinary Science. Three of these continued in the profession and became distinguished on a national level through their accomplishments in disease control.

It was not until March 21, 1894 that the New York State Veterinary College was established at Cornell. It was the first contract college (later to be known as a statutory college) at Cornell, thereby setting the stage for a long and effective arrange-

ment between the state and the University. A veterinary building (named James Law Hall some years later) was provided by the state and the doors were opened for classes in the autumn of 1896. The school was composed of six faculty of professorial rank, two instructors, and eleven students. Scholastic requirement for entrance was a high school diploma or its equivalent, a rather high standard for those days.

The early faculty recognized the importance of a good library and set this goal as one of their priorities. Governor Roswell P. Flower made a personal donation in 1897 to the library which now bears his name and houses an impressive collection of veterinary resource materials.

The College remained at the original site (at the southeast corner of East Avenue and Tower Road) until the summer of 1957. During that time it had expanded with the construction of a clinical complex along Garden Avenue and a large laboratory building (Moore Laboratory) to house the Department of Bacteriology and Pathology. In addition, the University had provided a large tract of land on Snyder Hill to be used as a research farm.

The present site of the College was occupied in July 1957 and the College has continued to expand in its teaching, research, and service to the people of the state. The present on-campus facilities occupy about twenty acres, with ancillary facilities on Snyder Hill and elsewhere. The latest addition is the eight-story Research Tower, dedicated June 27, 1974.

Expansion is a continuing process at the New York State College of Veterinary Medicine as it seeks to provide practitioners, scientists, and teachers for the future welfare of animals and man.

The New York State College of Veterinary Medicine is located along Route 366 at the eastern edge of the campus of Cornell University at Ithaca, a city of approximately 30,000 permanent residents, situated in the famous Finger Lakes Region of New York at the head of Cayuga Lake. The city is in the south-central part of the state about 260 miles northwest of New York City and 50 miles south of Syracuse.

The Veterinary College Library

The library, endowed by a gift from Roswell P. Flower, governor of New York when the College was founded, is named the Flower Veterinary Library in his honor. It is maintained partly by endowment funds and partly by appropriations from the state. It is on the second floor of Schurman Hall. The large reading room, seating seventy, features display shelves of current journals and areas for indexes, abstracts, and other reference books. The adjoining stacks of journals and monographs, on three levels, are open for use, and individual study carrels are also available.

The library contains over 60,000 volumes and regularly receives 1,128 periodicals and series titles. This represents a worldwide selection of veterinary titles plus titles in the biomedical sciences designed to support undergraduate, graduate, and research programs. Through the various libraries on the campus more than 4 million volumes and 50,000 journals and serials are made available to students. These collections, interlibrary loans, and photo-duplication of materials supplement the research potential of the veterinary library, which is rich in historical and basic research resources as well as recent monographic works and especially selected government publications. A monthly newsletter is issued listing recent acquisitions.

Information on regulations and suggestions for the use of the library are provided to new students. Additional instruction in bibliographic research is available for advanced problems.

The bibliographic retrieval service located in Mann Library provides ready access to extensive computerized medical and biomedical data bases.

Research Facilities

Facilities for research are constantly expanding. In addition to on-campus facilities, laboratories for research on infectious, parasitic, and metabolic diseases have been constructed on Snyder Hill, about three miles from the campus, on a tract of 133 acres. In this same area, for the study of reproductive diseases of dairy cattle, one hundred heifers and thirty bulls are housed in available facilities.

Besides the many buildings for housing animals, most of which have small pastures, exercise lots, or paddocks, a number of laboratory buildings have been built for professional staff members stationed there for research. Most recent additions include a laboratory for the study of leukemia, financed by the National Cancer Institute, a large animal isolation facility, and a dog quarantine building.

Feline Research Laboratory

On February 12, 1974, the Board of Trustees of Cornell University approved the formation of the Cornell Feline Research Laboratory as a unit of the New York State College of Veterinary Medicine. This formalized a program started in 1964 to study

the infectious diseases of the cat, and expanded this program to study not only infectious diseases, but all diseases that pose a significant threat to the health of cats.

The purposes of the Cornell Feline Research Laboratory are: (1) to promote and conduct research on diseases of the domestic cat in order to prevent or cure these diseases, (2) to provide continuing education on feline diseases to feline practitioners and cat owners, and (3) to aid feline practitioners when new or unknown diseases occur.

The Cornell Feline Research Laboratory is composed of a director and a group of faculty, graduate research assistants, and staff from several departments within the New York State College of Veterinary Medicine who have a keen interest in understanding, preventing, and curing diseases of the cat. Each investigator conducts independent research in his or her area of expertise, with collaborative help from investigators in whatever other area of expertise is needed. This multidisciplinary research may involve investigators from clinical medicine to the most basic sciences in order to solve a particular disease problem.

Poultry Disease and Aquatic Animal Disease Research

Poultry disease research is done on the campus in conjunction with the diagnostic and teaching laboratory and at the P. Philip Levine Laboratory on Snyder Hill about three miles from the campus. A forty-one unit disease isolation building forms part of the facilities on the campus; these units are used for studies on chickens, pet birds and other avian species, and on shellfish. The facilities at Levine Laboratory consist of a two-story building, well equipped for research in the bacterial, viral, and parasitic diseases of chickens and turkeys.

A disease-free flock of chickens is maintained for the production of chicks and embryos. There are twenty-eight separate pens for holding experimental birds on a tract of land of several acres.

A duck disease research laboratory with excellent equipment is maintained at Eastport, Long Island, with the cooperation of the Long Island Duck Research Cooperative.

Diagnosis

The College of Veterinary Medicine maintains and staffs regional veterinary laboratories for poultry disease diagnosis at Ithaca, Kingston, and Eastport. The latter is combined with the Duck Research Laboratory. These diagnostic facilities serve the poultry industry needs in the surrounding area. Their staffs provide extension services and assist in the collection of materials and cases required for research in Ithaca.

A laboratory for diagnosis of aquatic animal diseases is also maintained at the College itself. It serves the fin-fish and shellfish industries and provides a source of materials required for teaching and research.

New York State Mastitis Control Program

This program, a part of the Department of Clinical Sciences, has three primary concerns: (1) teaching, (2) consultation and diagnostic service to the practitioner and dairyman, and (3) field research on mastitis control. Five diagnostic laboratories, located in dairy areas of the state, are operated within the program.

Dr. L. A. Wager, program director, also acts in the capacity of field veterinarian at the Canton laboratory. Veterinarians and dairymen in eight northern New York counties with a cow population of approximately 130,000 are served by this laboratory.

Dr. G. L. Hayes is field veterinarian at the Earlville laboratory, which offers service in ten central-eastern counties with a cow population of approximately 257,000.

Dr. A. M. Britten is field veterinarian at the Kingston laboratory, which serves the nineteen eastern counties of New York with an estimated cow population of 134,000.

Dr. R. G. Whitehead is field veterinarian at the Springville laboratory, which serves an eleven county area in western New York with a cow population approximating 192,000.

Dr. W. E. Linquist, supervising veterinarian, also acts in the capacity of field veterinarian for the central laboratory located at the New York State College of Veterinary Medicine at Ithaca. At this laboratory, student training and research programs

are conducted in addition to the diagnostic services offered in the eleven counties of central New York with a cow population of approximately 134,000.

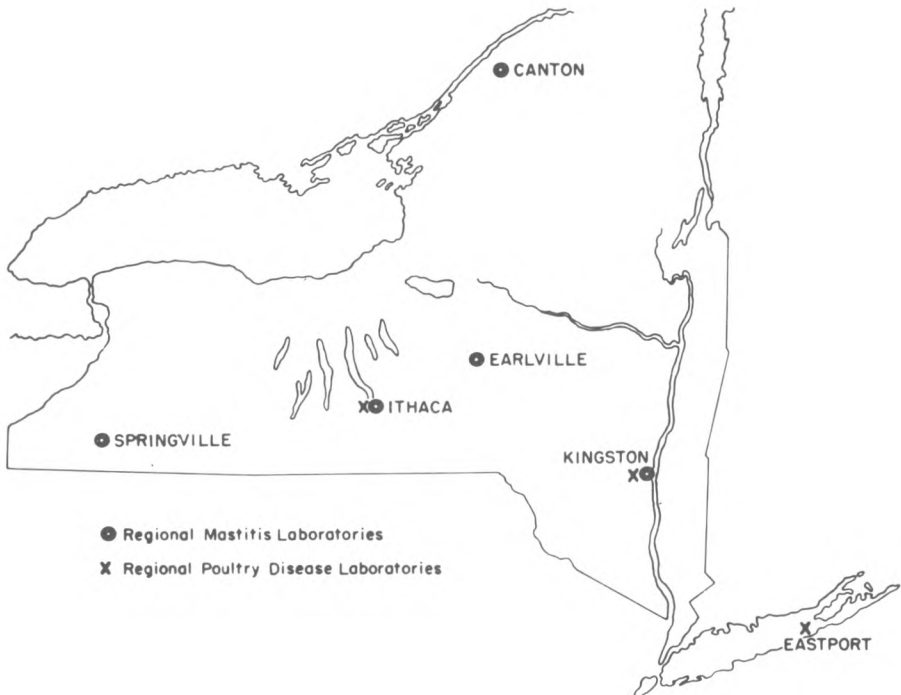
All laboratories participate in research carried out on basic and practical aspects of mastitis prevention, often in cooperation with the Mastitis Research Sections of the College of Veterinary Medicine and the College of Agriculture and Life Sciences.

James A. Baker Institute for Animal Health

In September 1950, the Board of Trustees of Cornell University established a new unit in New York State College of Veterinary Medicine: the Veterinary Virus Research Institute. Formation of the Cornell Research Laboratory for Diseases of Dogs was approved as a section of the Institute. In September 1975, the name of the institute was changed to the James A. Baker Institute for Animal Health.

The primary objective of the institute is to prevent loss from infectious diseases in animals. Toward this end, basic research is conducted upon organisms that cause disease in order to increase knowledge of their nature, means of spread, and methods whereby their spread can be controlled. Another objective of the institute is advanced training of workers in the field of virology. Determined by the amount of laboratory space available, a limited number of graduate students and postgraduate visiting investigators are accepted.

After consideration of the many technical difficulties involved in work with viruses and other living



8 Admission to the College

organisms that may be airborne or transferred accidentally in other ways, a building complex was begun in 1950 and has been expanded from time to time. In this complex are twelve modern and fully equipped laboratories designed specifically for research and graduate teaching of virology, nutrition, biochemistry, and electron microscopy as well as a library, offices, and a tissue culture laboratory. There are twenty-six animal isolation units constructed to avoid unplanned infections. Specific pathogen-free animals are produced in separate animal buildings.

Research on Sheep and Cattle Disease

A tract of seventy-five acres of land on Turkey Hill, particularly suitable for research on internal parasites of sheep, has been equipped for maintaining these animals. A sheep barn is available and includes facilities for raising experimental animals under helminthologically sterile conditions. On an adjacent fifty acres, facilities are available for the study of reproductive diseases of dairy cattle.

Radiation Biology

A field laboratory, including a radiation exposure facility, a whole-body counter and associated barns, holding areas, laboratories, and offices, is maintained on a forty-two acre tract of University land. The laboratory is ideally suited for metabolic and physiological studies utilizing radioactive materials and radiobiological studies with large and small animals. The facility is an integral part of the Department of Physical Biology, and work at the field laboratory is coordinated with other departmental activities carried out in the veterinary Research Tower.

Muenschner Poisonous Plants Garden

Located north of the James Law Auditorium, this living collection of poisonous plants includes most of those found in the Northeast, and some from other parts of North America. It is maintained by the College of Veterinary Medicine in cooperation with the New York State College of Agriculture and Life Sciences and Cornell Plantations. Each specimen is labeled with its scientific name, its common name, and the name of the plant family to which it belongs. The garden is open to visitors year-round.

Veterinary Medical Computing Facility

The facility, operated by the Department of Physical Biology in the research wing of the College of Veterinary Medicine, serves a variety of computing needs of the College. Hardware includes a PDP-11/45, GT-40, and several minicomputers. Computer time is available to anyone at Cornell who needs the specialized capabilities of real-time data acquisition, graphics, and interactive computing.

The major activity of this facility is development and operation of a medical information system for the veterinary clinics and laboratories. The hospital

information computer system is dedicated to the management of clinical records in the Small- and Large-Animal Hospitals. A PDP-11/45 computer contains the data base, which is accessed on-line from display terminals located throughout the College. The system is available to students, faculty, and staff of the College for clinical studies and research involving the management of medical data bases.

Clinical Facilities

A teaching hospital consisting of clinical facilities for both large and small animals is located adjacent to the research and preclinical teaching facilities. The hospital comprises, in addition to the clinical facilities, the ambulatory (out-patient) service and numerous clinical services that draw upon the experience and skill of the clinical faculty and the proficiency of research specialists in their specific areas of competence. Specialty sections within the clinical services move freely throughout the hospital to extend the best standard of care available to patients while exposing students to the combined appraisal of the teaching staff.

Clinical Nutrition Program

In 1972 an agreement was signed between Cornell University and the Mark L. Morris family for the establishment of (1) a position entitled the Mark L. Morris Professorship of Clinical Nutrition and (2) a teaching and research program in veterinary clinical nutrition, to be located in the New York State College of Veterinary Medicine. The Clinical Nutrition Program is currently composed of the Mark L. Morris Professor of Clinical Nutrition, other collaborative faculty members, one laboratory technician, and two graduate research assistants. A two-semester-hour course in clinical nutrition for veterinary students has been established and research activities in both large and small animal clinical nutrition have been instituted. Continuing education and extension programs have been initiated and a consulting service for nutritional problems is available.

Admission to the College

Admission Policy

It is the policy of Cornell University actively to support equality of educational opportunities. No student shall be denied admission to the University or be discriminated against otherwise because of race, color, creed, religion, national or ethnic origin, or sex. The University does not discriminate against qualified handicapped persons in its admissions or recruitment activities.

The Faculty Committee on Admissions endeavors to select the best qualified applicants who, in their judgment, are most able to successfully complete the veterinary medical curriculum. They must also have the potential for becoming competent, responsible veterinarians dedicated to a lifetime of productive public service and continued learning.

Although the largest percentage of students admitted are residents of New York State, a limited number of well-qualified nonresident applicants are also accepted. Candidates who feel their academic and other qualifications are outstanding are urged to apply, regardless of residency.

Preparation for the Study of Veterinary Medicine

Admission to the New York State College of Veterinary Medicine requires a minimum of three years preparation in an accredited college or university. This preparation does not have to be completed in a specialized college or in a designated "preveterinary" program. It is recommended that potential candidates seek an institution that offers the prerequisite courses as part of a baccalaureate program, has rigorous entrance requirements, and a national reputation for academic excellence. Because of limitations in class size, competition for admission is keen. Therefore, every candidate should have secondary career objectives. The best preparation for the study of veterinary medicine is to fulfill all entrance requirements while attaining excellence in the preparation for an alternative career.

Admission Requirements

Course and Grade Requirements

Successful completion of a minimum of three years of study in a college or university, approved by its regional accrediting association, is a requirement for admission to the New York State College of Veterinary Medicine. In exceptional cases, outstanding students who have completed all of the prerequisites in two years of undergraduate education may be considered for admission.

The minimum course requirements for admission are as follows:

	<i>Semester Credits</i>	<i>Quarter Credits</i>
English	6	9
Biology or zoology (w/laboratory)	6	9
Physics (w/laboratory)	6	9
Inorganic chemistry (w/laboratory)	6	9
Organic chemistry (w/laboratory)	6	9
Biochemistry	4	6
General microbiology (w/laboratory)	3	4.5

Transcripts must document passing grades (C- or better) in all prerequisite courses. In certain cases arising from specific scheduling difficulties, outstanding applicants may be approved for admission before courses in microbiology or biochemistry are completed, but acceptance is contingent upon satisfactory completion before matriculation. Applicants with prerequisite courses in progress at the time of formal faculty review of the application may risk being at a disadvantage in comparison to those with satisfactory completion of all prerequisites.

Applicants should be proficient in college-level mathematics (at least calculus) and in written and

spoken English. Deficiencies in these fundamental skills hamper professional development in a rigorous scientifically-based discipline.

The biology and zoology, physics, and microbiology courses must have associated laboratory instruction.

The chemistry requirement must include at least one course in organic chemistry with laboratory instruction and a four-semester-hour course in biochemistry. Laboratory instruction is not required in biochemistry. However, if a four-hour biochemistry course is not offered, a three-hour course, plus a course in laboratory instruction should be taken. If the total chemistry credits do not equal the above minimum requirement, another chemistry course must be taken, such as quantitative or qualitative analysis or physical chemistry. There must be evidence of sound preparation in inorganic, organic, and biochemistry. If the undergraduate college does not offer a substantial introductory biochemistry course, courses in related disciplines (molecular or cell biology; physiologic chemistry) that provide a sound background in the structure, properties, and metabolism of protein enzymes, vitamins, lipids, carbohydrates, and nucleic acids will be accepted in fulfillment of the biochemistry requirement at the discretion of the admissions office, acting within policy guidelines of the Faculty Committee on Admissions.

Courses that do not require a laboratory and have been taken through the United States Armed Forces Institutes are acceptable.

In the case of all courses submitted as substitute courses, or for Armed Forces Institute courses, the applicant should submit a current course description for consideration by the Faculty Committee or the admissions office.

Although grades are not the sole criterion for admission, it is desirable that an applicant have at least a 3.0 (4.0 scale) cumulative grade point average in prerequisite courses, and a Graduate Record Aptitude Test score (combined verbal and quantitative scores) above 1200.

A prerequisite will not be regarded as fulfilled for any course in which the final grade is less than C-. In computing the grade point average, a grade of D or F will be computed with the grade received in the repeated course. The evaluation of prerequisite academic work will involve a review of all related undergraduate and graduate courses.

Since it is impossible to evaluate honors, pass-fail, and S-U grading systems, it is necessary to obtain a letter grade for all of the prerequisite courses required for admission and have these grades certified by the registrar at the applicant's undergraduate institution.

Animal Practice Requirements

By January 1 of the year in which the applicant seeks admission, he or she must have fulfilled one of the two animal practice requirements: the small animal practice requirement and the large animal practice requirement. It is suggested that applicants who are admitted fulfill both requirements before

10 Admission to the College

matriculating. Both requirements must be completed before registration of the third year in the College of Veterinary Medicine.

Large Animal Practice Requirements. At least ten weeks one summer must be spent working with large animals. This requirement can be met by working on a farm with a number of at least one of the large domesticated animal species, preferably dairy cattle. However, if it is not possible to work on a dairy farm, working at one of the following will be acceptable: racetracks, horse stable or farm, cattle ranch, sheep farm, or swine farm. This work must include the responsibility for the care, handling, and feeding of the animals. Working with a few personally owned pleasure horses or university or college animals as part of a course or research project usually will not suffice.

Small Animal Practice Requirement. At least ten weeks one summer must be spent in some phase of small animal work. This requirement may be met by working with a veterinarian serving as a small animal practitioner or through zoo, laboratory animal, poultry, or similar types of animal work. This requirement cannot be satisfied by working with one's own pets. It may be fulfilled by working at home, providing such work is part of a bona fide commercial animal rearing operation such as a kennel, mink ranch, or poultry farm.

Documentation of Animal Practice. An animal practice essay is required of every applicant. This is a brief, one- or two-page typewritten report describing the animal practice experience, including kind of work done, amount of time spent, and thoughts regarding the experience. Only animal experience obtained after the age of fifteen will be acceptable in fulfilling the animal practice requirements. These requirements are applicable to both sexes. It is not possible for the College to find positions or to furnish a list of names of potential employers; the applicant must assume this responsibility.

Employer evaluation forms will be sent with the supplemental application material. It is the applicant's responsibility to see that this form is completed and returned by the employer with whom the applicant worked to fulfill the animal practice requirement. The application is incomplete without it.

Other Requirements

Essay on Aspirations for Veterinary Medicine.

Applicants must submit a 1,500 word typewritten essay as part of the supplemental application material. This document should describe the factors having the greatest effect on the applicant's present outlook on life and those factors that have motivated the applicant toward veterinary medicine as a career.

Graduate Record Examination. The Graduate Record Examination Aptitude Test (GRE), administered by the Educational Testing Service, Box 955, Princeton, New Jersey 08540, is required. Arrangements should be made to take the GRE no later

than October of the year in which application is made to allow sufficient time for the results to be received by the College. In item 11 of the GRE application form, applicants should enter the following information: Institution Code R 2549-4, New York State College of Veterinary Medicine. (The Advanced Biology Test is not required but may be included.)

Evaluation from Faculty Adviser. A form is provided for completion by your faculty adviser at the institution where the studies for preparation for veterinary medicine were carried out. It is the applicant's responsibility to deliver this form to the faculty adviser. Evaluations compiled by advising committees are also acceptable. Forms are provided with the supplemental application material but other formats may be used to supplement information provided on the standard form.

Letters of Recommendation. Those applicants who satisfy basic prerequisite requirements and subsequently are required to provide supplemental information are responsible for ensuring that at least two letters of recommendation reach the College Office of Admissions not later than the deadline assigned for receipt of those items. Standard forms are provided as part of the supplemental application material offered to qualified applicants. More detailed letters of recommendation aside from those provided on the forms will be considered by the faculty in their deliberations.

Application Procedures

Application forms and detailed information may be obtained by writing to the Office of Admissions, New York State College of Veterinary Medicine, Cornell University, C-107 Schurman, Ithaca, New York 14853. Preliminary applications are normally available in late summer of the year prior to the year admission is sought. Those seeking admission for the fall of 1978 must have a preliminary application form, a \$25 application fee, information about satisfaction of animal practice requirements, the Graduate Record Examination scores, and records of all postsecondary academic work on file at the College Office of Admissions by November 1, 1977.

Those applicants who warrant further consideration after review of their preliminary application will be provided supplemental application material. Normally the completed application must be returned within 30 days of its mailing. Deadline dates will be flexible enough to compensate for delays in processing but assigned deadlines must be met. Applicants who are to complete the entire application process for possible matriculation in 1978 must have all required material on file by January 1, 1978.

In February the Faculty Committee on Admissions generally begins interviews of those felt to be best qualified after detailed application review. Interviews terminate in April and the class will be announced by May of the year of possible matriculation. While the class size varies each year, there will be approximately 80 in the Class of 1982. For the

Class of 1981, 838 applied, 611 received supplemental application material and were afforded a thorough review of academic and nonacademic credentials, and 257 received interviews. The class size is 80.

Reapplication

If a previously denied applicant desires to reapply, he or she should follow the same process described above with only slight modification. Previous applications are retained on file for only three years after the date of the last application. Subsequent applications will require new forms, the application fee, and a revised updated essay to reflect developments which the applicant feels strengthen his or her candidacy. Applicants should avoid adding addenda to narrative reports. Rather, the new material should be complete and stand alone. All personal reports and other documents should be dated and signed.

Previously submitted recommendations, evaluations, transcripts, and GRE results will be transferred to the new application file. It is the responsibility of the applicant, however, to ensure the College is provided current pertinent information to supplement that provided with a previous application. It is not a requirement to retake the GRE, but if that is done, the Committee on Admissions will review all results, with added weight to higher scores.

Selection Criteria

The criteria upon which the Admissions Committee bases its selection are as follows:

I. *Academic achievement and aptitude.* In view of the need for quickly learning large amounts of factual material and an ability to solve problems, successful applicants must have demonstrated achievement and potential for comprehension of scientific materials. This ability is evaluated by examination of the candidates' grades in prerequisite courses (particularly the sciences), the overall average of all college-level courses taken, and scores on the Graduate Record Examination.

II. *The quality of the program presented as preparation for the study of veterinary medicine.* Because the veterinary curriculum and the veterinary profession are rigorous and demanding, the committee usually regards the quality of the academic program presented for admission as an important criterion. Such things as the variety and balance of courses taken, the difficulty of courses selected, and the ability to carry a heavy academic course load at a high quality institution are considered. Ideally, the applicant should have achieved excellence in a broad selection of physical and biological sciences, social sciences, and humanities. The choice of the major should be determined by the applicant's alternate career goals. No preference is given to applicants majoring in any particular field.

III. *Experience, knowledge, and achievement in matters relating to animals and the veterinary profession.* Veterinary medicine is an animal-oriented profession. Thus it is important that candidates

present evidence of experience, knowledge, and achievement with animals beyond the "love of animals." Such achievement can revolve around jobs and experience with breeding, rearing, feeding, and showing various kinds of animals including pets, zoo animals, farm animals, and wildlife. It can also involve experience in teaching or research in basic sciences or the areas indirectly related to medicine or veterinary medicine. Candidates should experience sufficient contact with veterinarians so that they are thoroughly appraised of the duties, responsibilities, and scope of veterinary medicine.

IV. *Experience, knowledge, and achievement in extracurricular activities and matters unrelated to veterinary medicine.* Ideally, the well-rounded person has accomplishments outside the professional realm. Therefore, the committee evaluates the depth and breadth of achievement in extracurricular activities, community service, hobbies, and nonacademic interests of all varieties.

V. *Personal characteristics.* Aside from the above criteria, the committee endeavors to select candidates of high integrity, reliability, maturity, and determination. It is important that professional people have excellent oral and written communication skills, poise and leadership abilities, and a talent for getting along with people. The Admissions Committee spends many hours evaluating the credentials provided by an applicant in comparison to the selection criteria in search of evidence of a broad range of educational and extracurricular aptitudes and accomplishments that mirror the highest ideals of the profession of veterinary medicine and reflect uncompromising excellence.

At the Admissions Committee's discretion, a limited number of successful applicants may be permitted to postpone matriculation one year, with assurance of placement in the next class.

Further Information

Additional questions can be answered by writing the Office of Admissions, New York State College of Veterinary Medicine, C-107 Schurman Hall, or calling 607/256-7633.

Informational Sessions and Tours of the College

Because of the large number of aspiring students, formal individual preapplication counseling sessions cannot normally be granted. However, prospective applicants and others may arrange by appointment to attend group information sessions and College tours. These are given at 9:00 a.m. on the first Saturday of each month of the school year. For an appointment please call 607/256-7634.

Advanced Standing

Applicants for admission with advanced standing as members of the second-, third-, or fourth-year class must present educational qualifications similar to those expected of students who have completed the prior year's courses at Cornell. They should be attending one of the veterinary colleges accredited

by the American Veterinary Medical Association. Otherwise they must satisfactorily pass examinations in all of the work for which they desire advanced credit. No person will be admitted to any advanced class except at the beginning of the college year in September. The applicant must file a formal application as directed above and must be interviewed by the Admissions Committee. In addition, there must be a vacancy in the class.

It is imperative that the Admissions Committee have detailed and translated summaries of academic programs and accomplishments from those seeking advanced placement after completion of some academic work at another school or college of veterinary medicine. Advanced standing applications are normally considered during the summer months just prior to possible matriculation, but applications should be on file and complete as early as possible, and not later than June 1.

University Requirements

Applicants for admission must not only satisfy the College entrance requirements but must also comply with the following rules of the University.

Every candidate for admission who receives a notice of approval of his or her application must pay a registration fee. Candidates will be advised of the due date and amount of this fee at the time an acceptance for admission is sent.

If the candidate withdraws before the due date of this registration fee, the fee will be refunded. No refund will be made to an applicant who withdraws after the due date of the fee; in that case the whole fee will be retained by the University in payment of its costs and intangible losses resulting from such withdrawal.

Each entering student is expected to assume personal responsibility for fulfilling the health requirements adopted by the Board of Trustees of Cornell University. Permission to register for a new semester will not be granted unless all health requirements pertaining to the previous semester have been fulfilled.

Combined Courses

By judicious planning, students who do their pre-veterinary work in the College of Agriculture and Life Sciences at Cornell, may be able to qualify for both B.S. and D.V.M. degrees in less time than would be required if the courses were taken consecutively. This can be done by double registration. Students interested in this program should consult with their undergraduate faculty advisers.

Registration

Every student must register at the Office of Student Administration, C-107, Veterinary College (Schurman Hall) before the close of the regular registration period unless the student has received special permission from the director of student administration.

Admission to the Graduate School

Graduates of the veterinary college or other colleges may enter the Graduate School of Cornell University and pursue work for the degree of M.S., Ph.D., or D.Sc. in Veterinary Medicine in the College of Veterinary Medicine and allied departments of the University.

Students in the professional curriculum also have the opportunity to apply for combined degree programs. The D.V.M./M.S. program enables a veterinary student, through summer registration in the Graduate School, to obtain an M.S. at the end of the summer following his or her senior year. Summer stipends are paid and summer tuition is waived in this program.

The D.V.M./Ph.D. program is designed for students with excellent academic records who have shown an interest in and commitment to research and teaching. This integrated program enables an incoming veterinary student to obtain both the D.V.M. and Ph.D. degrees in six years. Annual stipends are paid in addition to tuition waivers.

Further information on all of these programs may be obtained by writing to Dr. John F. Cummings, Graduate Faculty Representative, New York State College of Veterinary Medicine, Ithaca, New York 14853.

All applicants to the graduate Field of Veterinary Medicine should submit results of the Graduate Record Examinations Aptitude Test taken during the past four years. Scores of an advanced test are also desirable. This requirement may be waived in some circumstances.

The College of Veterinary Medicine, alone or in combination with other departments of the University, offers advanced students excellent opportunities for study and investigation. Its situation gives it abundant and varied material for research, and it has ample research facilities. It encourages graduate and advanced students to carry on independent investigations. Courses of study especially adapted to advanced work and research will be found among those listed in pp. 25-40 of this *Announcement*.

A student who holds the degree of Doctor of Veterinary Medicine from a recognized college or school in the United States or Canada may transfer one year's residence credit for that work toward the Doctor of Philosophy degree whenever the student's Special Committee certifies that the work done in the years of professional study formed an integral part of the work required for the doctorate and was of equivalent quality.

The Degree of Doctor of Science in Veterinary Medicine

Admission to candidacy for the degree of Doctor of Science in Veterinary Medicine (D.Sc. in V.M.) is a function of the Field of Veterinary Medicine of

the Graduate School. The following requirements must be met before admission to candidacy:

1. The candidate must have been graduated for at least five years from an approved school of veterinary medicine.
2. The candidate must have demonstrated by published papers the ability to do independent meritorious research.

Candidates who have no graduate credit beyond their D.V.M. degree must complete not less than four residence units to qualify for the degree. It is considered that at least two units of work leading to the degree of Doctor of Veterinary Medicine are an integral part of this professional degree. Those who have a Master of Science degree or its equivalent from an approved college or university may complete the minimum residence credit by acquiring at least two additional units.

After a candidate has been admitted, he or she will select a member of the faculty in veterinary medicine to serve as chairperson of the Special Committee. The faculty of the field will then select two other members of the committee. These three individuals will have charge of the candidate's program and will be responsible to the faculty of the field for supervising the candidate's work, which must fall in the following categories:

1. Advanced courses in any of the sciences that have a relation to medicine. Selected courses that are part of the regular curriculum of the Cornell University Medical College may be accepted for not more than half of the total credit in this category. In no case will credit be granted for courses that are part of the regular curriculum in veterinary medicine or for similar courses in the Medical College curriculum.
2. Regular attendance and study in any of the clinics of the College of Veterinary Medicine or of the Medical College.

All candidates must take at least two-thirds of their work in courses that can properly be included under category 1. If desired, they may take all their work in category 1. Not more than one-third of their work may be taken in category 2.

Courses will be deemed satisfactorily completed only upon receipt of a regular transcript of credits. Following completion of course work, each candidate for this degree must present an acceptable monograph or thesis in the area of special interest and must submit to a general examination covering the subject matter of his or her work. The Special Committee will set the time and place of the examination and invite all members of the field and the graduate faculty of other fields who have participated in the student's training to attend. They have the right to examine the candidate and express to the Special Committee their opinions of the candidate's competence, but only the Special Committee has the responsibility for recommending the student for the degree. The recommendation is addressed to the faculty of the Field of Veterinary Medicine of the Graduate School, which then makes recommendations to the Graduate School.

Finances

Tuition and fees for Doctor of Veterinary Medicine degree candidates are \$2,800 a year for entering and continuing New York State residents, \$3,650 a year for continuing nonresidents (enrolled prior to July 1, 1976), and \$4,500 a year for entering nonresidents. Most students in this college do not live in University housing. Living costs can not be stated with the same degree of certainty as regular University charges, since they depend to a great extent upon the individual's standard of living. The cost of room and board in Ithaca for purposes of calculation of financial aid assistance for DVM student in 1977-78 is estimated at \$2,250. Books, instruments, and supplies will cost approximately \$300 a term. An additional allowance of \$600 must be made for clothing, laundry, travel, entertainment, and incidentals.

Those students who are candidates for the degree of M.S., Ph.D., or D.Sc. in Veterinary Medicine should consult the *Announcement of the Graduate School* for applicable tuition and fees.

Tuition or other fees may be changed by the Board of Trustees at any time without previous notice.

Financial Aid

Students in the College can receive information and guidance in matters of financial aid and scholarship support from the College Financial Aid Office. The College uses the Guidance and Professional School Financial Aid Service (GAPSFAS) in order to standardize the procedures and provide uniform criteria for allocations, following federal guidelines. Any veterinary student who wishes to apply for financial aid administered through the College should request a GAPSFAS form from the College, to be completed in the spring semester with awarded aid to begin in the fall. Applicants who are accepted for the first-year class will receive GAPSFAS forms by mail following the selection process. Financial aid packages recommended from the College Financial Aid Office combine resources available from scholarships, grants, and loan funds. Students are encouraged to avail themselves of this service.

Residents of New York State who qualify for the Tuition Assistance Program awards need to make direct application annually to New York Higher Educational Services Corporation, Student Financial Aid Section, Empire State Plaza, Tower Building, Albany, New York 12255.

Loan Funds

Sources for loans to veterinary students are as follows: The Cornell Veterinary Alumni Association; the New York State Veterinary Medical Society; the Family of David E. Wright, '12; the Dean W. A. Hagan Fund; National Association of Federal Veterinarians Emergency Loan Fund; Student Emergency Loan Fund of the Women's Auxiliary to the New York State Veterinary Medical Society; the

Charles H. Webster Veterinary Fund; the Joseph Brender Student Loan Fund; the Omega Tau Sigma Fraternity Loan Fund; the Health Professions Loan Program; National Direct Student Loans; New York State Higher Education Services Corporation (similar services are available to residents of most states); and certain other funds administered by Cornell University. Most guaranteed loans require no interest or principal payments by the student until after leaving school. Interest rates vary according to source, and certain short-term loans are interest free.

Special Opportunity Programs

Cornell University administers a variety of special opportunity programs designed to provide financial assistance and other forms of assistance to (1) minority students and (2) low-income students meeting program guidelines. The emphasis of these special programs is to aid in increasing representation of students from minority groups present in New York State who historically have been underrepresented in higher education. However, participation is also available to those residing outside New York State. For details, prospective students should consult the *Information for Applicants* which accompanies each undergraduate application or will be sent upon request by the Office of Admissions, 410 Thurston Avenue, Ithaca, New York 14853.

Scholarships for Veterinary Students

Veterinary students may receive help from various scholarship funds throughout the four-year course of study. The nature and extent of such assistance is dependent upon scholastic achievements, specific criteria established by each benefactor, and recommendations of the appropriate College committees. Students are briefed on the scholarship program in the fall semester and application procedures are outlined in posted announcements. Committee evaluations and recommendations are completed at the end of spring semester. Scholarship stipends are handled by the University treasurer and credited to the students' academic charges during the following year. Students interested in securing other forms of financial assistance should contact the College director of financial aid.

Numerous prizes are also available for veterinary students and are subject to conditions listed under each award. Many of the prizes, awards, and scholarships were established with endowments, so that the income distributed and number of awards may vary from year to year.

Allen Products Company Scholarships Four scholarships of \$4,000 each (\$1,000 per year) are available. The scholarships are awarded to incoming veterinary students on the basis of financial need, scholastic potential, and overall excellence of character. Continuation of the awards beyond the first year is contingent upon maintenance of scholastic performance and continued financial need, as determined by the Committee on Scholarships. Recipients must apply for continuation of the award on an annual basis.

Harriet G. Bird Memorial Scholarship Established by the Merwin Memorial Free Clinic for Animals, Inc. for Massachusetts residents. The award is based primarily on the financial need of applicants who maintain satisfactory academic performance.

Eastern Milk Producers Cooperative Scholarship The purpose of this scholarship is to assist a worthy student in the College of Veterinary Medicine, with preference to be given to sons or daughters of members of the Eastern Milk Producers Cooperative Association. The student must have an established need for financial assistance and show evidence of outstanding character and leadership ability.

Irene Heinz Given and John LaPorte Given Veterinary Scholarship The award is administered by the Committee on Admissions in accordance with the intent of the trustees of the Given Foundation to help qualified students applying for admission who might otherwise be financially unable to attend this college.

Arthur G. Hall Scholarship Established in 1975 as an endowed scholarship for needy and worthy students who maintain the moral standards required by the rules and regulations of the College.

Bertha Hamilton Scholarships Since 1972 a portion of the annual income of the Bertha Hamilton Trust has been donated to the College of Veterinary Medicine for scholarships to be awarded by the faculty on the basis of academic performance and financial need. Ten to fifteen scholarships are available each year.

David Kennedy Johnston Scholarships Under the will of Nettie J. Huey, funds were set aside to provide scholarships to students in the College of Agriculture and Life Sciences and the College of Veterinary Medicine. Five to ten scholarships are available each year.

Valentine Mott Knapp Scholarship This annual scholarship was established through the will of David V. Knapp as a memorial to his brother, Dr. Valentine Mott Knapp, '04. The award is made at the end of the third year. In awarding the scholarship, the faculty will take into consideration the ability of the applicant to do creditable academic work, the personal characteristics of the applicant with respect to professional attitude, and his or her financial need.

Madelyn C. Kreisler Scholarship Established in 1977 from the Madelyn C. Kreisler estate to provide scholarships in veterinary medicine.

Miles C. Markham Scholarship This endowed scholarship was established in 1976 in honor of Dr. Miles C. Markham by his wife, Hedwig, for worthy, needy students in the College. It is awarded on the basis of general worthiness of applicants, taking into consideration their overall character, academic ability, and financial needs.

Merrimack Valley Kennel Club Scholarship

The Club, of Derry, New Hampshire sponsors an annual award of \$200 for a student-resident from one of the New England states. The student is selected on the basis of financial need and creditable academic standing.

Pfizer Scholarship This scholarship is awarded to a student at the end of the third year whose academic achievement is adequate, whose need for the award is clear, and who shows good potential.

Charles River Fellowship Award Funded by the Charles River Breeding Laboratories, Inc., it provides a fellowship to support a D.V.M.-Ph.D. candidate pursuing a research project in the field of laboratory animal medicine. Funds will be awarded on a competitive basis and provide a stipend, tuition, and support for certain research costs.

Maurice H. Skyer Memorial Scholarship Provided by the Monticello-Goshen Chapter of the United States Harness Writers Association, this scholarship of \$300 is to be awarded to a student from Orange, Sullivan, Ulster, Delaware, or Dutchess County in New York, or from Pike, Wayne, Lackawanna, or Luzerne County in Pennsylvania. The student must be interested in working with horses. The scholarship is awarded for use in the fourth year.

Student Auxiliary/Student Chapter of the American Veterinary Medical Association Scholarship This award is for the purchase of textbooks required in the veterinary program. Married students beginning their second year whose spouses are members of the Student Auxiliary with demonstrated financial need and satisfactory academic standing are eligible. Credit accounts are established at the bookstore for the recipients.

The Jim Dale Thomas Memorial Scholarship

This award was established as a prize in 1965 and became a scholarship in 1969. The scholarship is awarded, for use in the fourth year, to a third-year veterinary student who has shown an interest in dairy cattle practice and has a high level of capability in this field. The award is made on the judgment of the faculty of the Department of Clinical Sciences.

Veterinary Virus Research Institute Scholarship

The Veterinary Virus Research Institute of the New York State College of Veterinary Medicine provides a scholarship to support a veterinary student in the combined D.V.M.-Ph.D. program. Funds will be awarded on a competitive basis and provide a stipend, dependency allowance, waiver of tuition, and support for certain research costs. The recipient of this scholarship is expected to pursue a research project dealing with canine diseases.

Women's Auxiliary to the New York State

Veterinary Medical Society Scholarship Two scholarships are awarded each year—one to a student at the end of the sophomore year and the other available to any student. The award of this scholarship will be based on the applicant's financial need and ability to do creditable academic work.

Yonkers Raceway Foundation Scholarship

By action of the executive committee of the Yonkers Raceway Foundation, an endowed scholarship of \$500 was established at the College of Veterinary Medicine to be awarded to a needy student who is a resident of New York State. The same criteria will be used in awarding this scholarship as are used in selecting the candidates for the Valentine Mott Knapp scholarship.

Prizes for Veterinary Students

These are among the prizes awarded at the College Annual Honor Day Banquet held in the spring of each year.

The Alpha Psi Prize is given by Beta Chapter of the Alpha Psi Fraternity. This prize is awarded annually to a candidate selected by faculty ballot. The award is made to a member of the graduating class who has shown by his or her scholarship, character, and breadth of interest that he or she is especially well equipped to advance the standards of veterinary science.

American Animal Hospital Association Student

Award. The Senior Award, consisting of a letter of commendation and an engraved plaque, is given in recognition of outstanding proficiency in small animal medicine and surgery. The Sophomore Award, based on academic achievement, comprises free student affiliate membership in AAHA during the recipient's junior year. Nominations for these awards are made by the faculty of the Department of Clinical Sciences.

The James Gordon Bennett Prize.

In 1916 Mr. James Gordon Bennett, New York, New York, endowed this prize for the students who show the greatest humaneness in handling animals, with special reference to the use of anesthesia. Mr. Bennett was the editor of the *New York Herald* (forerunner of the *Herald Tribune*) a century ago. A man of diverse abilities and interests, he is the person who dispatched Henry M. Stanley in 1870 to find Dr. David Livingston in Africa. Nominations are made by the faculty of the Department of Clinical Sciences.

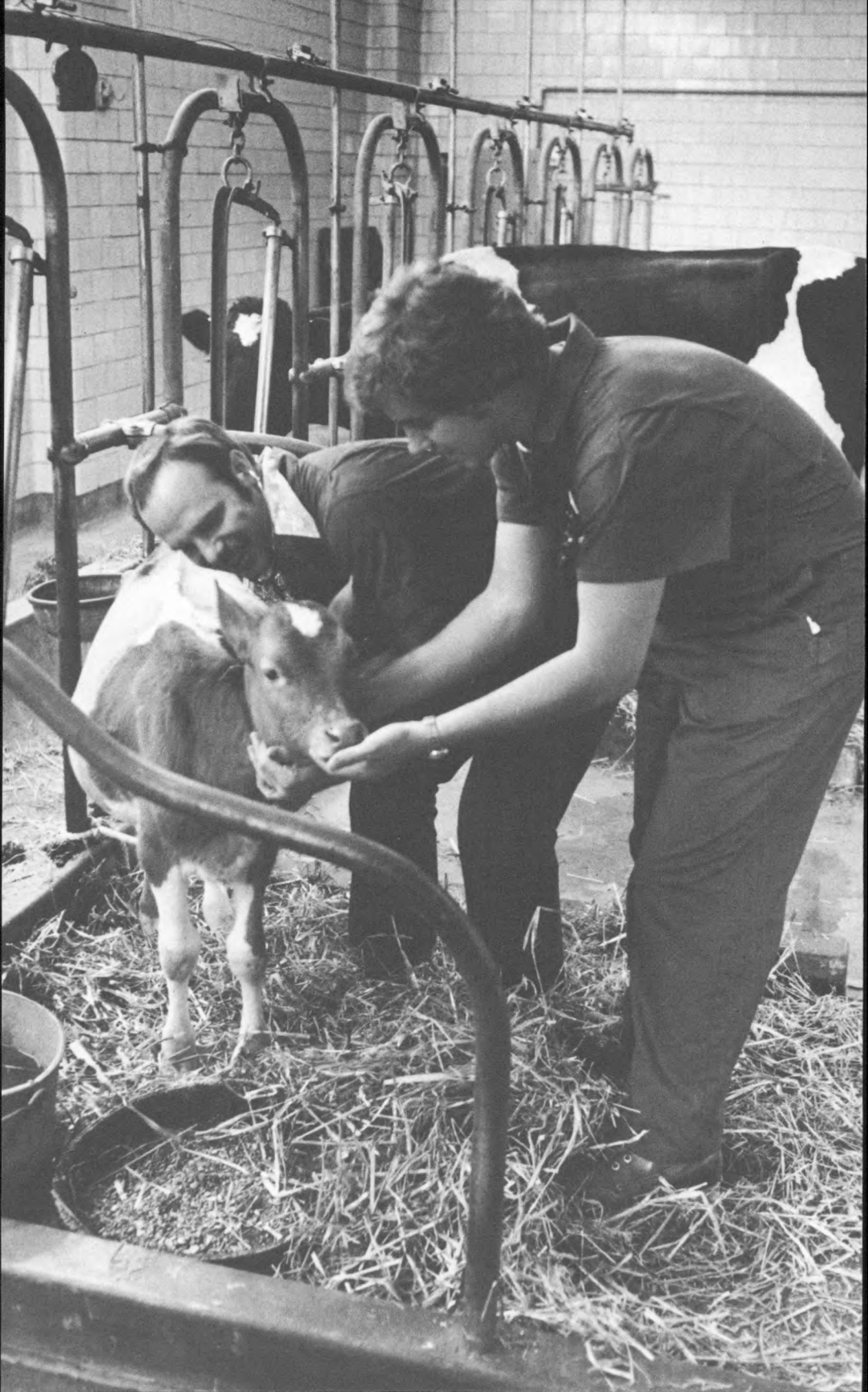
The Anne Besse Prize.

Miss A. B. Jennings of New York City endowed this prize in 1925, for the best work in medicine and clinical diagnosis. The candidates are nominated by the Department of Clinical Sciences.

The Charles Gross Bondy Prize.

Mr. Richard Bondy, New York, New York, endowed this prize in 1929 as a memorial to his son, for the best work in the courses in practical medicine and surgery of small animals. Nominations are made by the Department of Clinical Sciences.

Diamond Service Award. This award is to be presented annually to the senior veterinary student who, in the estimation of the junior and senior classes, has by his or her activities contributed to the enhancement of the profession.



The Merck Manual Awards. Two copies of the *Merck Veterinary Manual*, embossed with the names of the recipients, presented by Merck and Company, Inc., are presented to members of the graduating class. The basis of the award may vary from year to year and is determined by the dean and the director of student administration.

The Jane Miller Prizes. Funds for the endowment of these prizes were given by Dr. Frank H. Miller, a trustee of Cornell University for twenty consecutive years, a graduate of McGill University, and cofounder with H. K. Miller of the first small animal hospital in New York City, for the best work in veterinary physiology. It is awarded as a memorial to his wife to members of the second-year class. Candidates are nominated by the faculty in the Department of Veterinary Physiology.

The Malcolm E. Miller Award. In 1965 Mrs. Mary Wells Miller established this award in memory of her husband, Dr. Malcolm E. Miller ('34), a former professor of anatomy and the head of that department from 1947 to 1960. The recipient is to be a fourth-year student who, in the judgment of the dean and the director of student administration, has demonstrated perseverance, scholastic diligence, outstanding improvement, and other personal characteristics that will bring credit and distinction to the veterinary profession.

The Mary Louise Moore Prize. Dr. Veranus A. Moore established this endowed prize as a memorial to his wife for the best work in bacteriology. Dr. Moore served as head of the Pathology and Bacteriology Department and as dean of the Veterinary College from 1908 to 1930. Nominations are made by the Department of Veterinary Microbiology.

The New York State Veterinary Medical Society Prize. Funds for this prize are provided annually by the Society for the best case report. Members of the fourth year class are eligible to compete. Nominations are made by the Senior Seminar Committee who judge the quality of the case reports.

The Norden Distinguished Teacher Award. The recipient must be a full-time member of the veterinary medical faculty primarily engaged in teaching, which may include part-time research. Preceptorship and teaching ability as judged by student responsiveness and moral character and leadership shall be the primary qualifications for consideration.

Philotherian Photographic Prize. Dr. and Mrs. Hadley C. Stephenson established this endowment. Photographs of animals, submitted by students or their spouses, are judged by a committee appointed by the dean. The prizes are awarded on the basis of the individuality of the animal, its enjoyment of its surroundings, and the effect it has on the feelings of the judges.

The Phi Zeta Award. The Alpha Chapter of Phi Zeta, the honor society of veterinary medicine, each year awards the second-year student with the best academic record upon completion of the first three

semesters of study. The recipient of the award receives the *Beeson-McDermott Textbook of Medicine*.

The Poultry Disease Prize. This prize was established by Dr. Nathan Wernicoff '31 and Dr. Tevis Goldhaft '35 of Vineland, New Jersey for the purpose of stimulating interest in diseases of poultry, and is awarded to the student with the highest grade in the course on avian diseases.

The Anna Olafson Sussex Pathology Award. This award was endowed in 1974 by Peter and Harriette Olafson in memory of Dr. Olafson's sister. The award is to be given at the end of the third year on the recommendation of those actively engaged in teaching pathology.

The Jacob Traum Award. Through an endowment established by friends of Jacob Traum '05, professor of bacteriology emeritus, University of California, and formerly chief scientist at the federal Plum Island Animal Disease Laboratory, this prize is awarded to the fourth-year student who is judged by the Department of Veterinary Microbiology as having exhibited superior interest and accomplishment in bacteriology, epizootiology, pathology, and virology, including aptitude for and expressed interest in research on infectious diseases.

The Horace K. White Prizes. An endowment for these prizes was originally given by Mr. Horace K. White (and later his sons of Syracuse, New York) for the students whose academic records for the entire veterinary course are the highest. This award, originally called the President's Prize, dates back to 1873 and is probably the longest-standing prize at Cornell. The original donor was a brother to Andrew Dickson White, the first president of the University.

The Prize of the Women's Auxiliary of the American Veterinary Medical Association. On the recommendation of the Committee on Scholarships, this award is presented to the member of the fourth-year class who is deemed to have best advanced the standing of the College of Veterinary Medicine on the campus by special contributions of an extra-curricular nature.

Requirements for Graduation

The prescribed four-year curriculum leading to the degree of Doctor of Veterinary Medicine (D.V.M.) is summarized in the section below. To receive this degree, candidates must satisfy all the entrance requirements (pp. 9-10), successfully complete the courses named in the curriculum below, have paid all fees due, and have spent at least one year in residence.

The academic year, divided into two terms, begins in September and ends in May. Under consideration is a proposal to initiate summer academic clinics for the period between the end of the normal third year and beginning of the fourth year of classes. Students would be given appropriate vacation periods (free blocks) at other times to generally com-

18 Honor Societies

pensate for time spent in clinical study during the summer period.

At the conclusion of each term, the College faculty will review the records and conduct of students. Registration of unsatisfactory students will be terminated.

The Curriculum

The College has a core-elective curriculum. A summary of the core curriculum is listed below.

The abbreviation "Req." indicates that a course, or its equivalent, is required for graduation but that no formal credit is given for the course.

First Year

<i>Fall Term</i>	<i>Credits</i>
500 Gross Anatomy	5
502 Developmental and Microscopic Anatomy	3
525 Vertebrate Biochemistry	4
568 Veterinary Medical Orientation	2
581 Nutrition	2
	—
	16

Spring Term

501 Gross Anatomy	5
503 Microscopic Anatomy	3
504 Neuroanatomy	2
526 Physiology for Veterinary Students	4
569 Veterinary Medical Orientation	1
	—
	15

Second Year

<i>Fall Term</i>	<i>Credits</i>
515 Veterinary Immunology	2
516 Veterinary Bacteriology	2
518 Veterinary Mycology and Protozoology	1
527 Physiology for Veterinary Students	4
535 Veterinary Pathology I	4
537 Veterinary Parasitology	4
560 Clinical Methods	2
	—
	19

Spring Term

517 Veterinary Virology	2
519 Epidemiology and Infectious Diseases	4
528 Basic Pharmacology	4
536 Veterinary Pathology II	5
555 Avian Diseases	2
561 Obstetrics and Reproductive Diseases	3
579 General Medicine	2
	—
	22

Third Year

<i>Fall Term</i>	<i>Credits</i>
505 Applied Anatomy	1
529 Clinical Pharmacology	2

539 Introduction to Laboratory Animal Medicine	1
550 Applied Radiation Biology and Veterinary Nuclear Medicine	1
562 Obstetrics and Reproductive Diseases	3
563 Large Animal Medicine	4
571 Clinical Pathology	3
583 Small Animal Medicine and Surgery	3
587 General Surgery	3
	—
	21

Spring Term

506 Applied Anatomy	1
564 Large Animal Medicine	4
565 Large Animal Surgery	4
566 Radiology	2
567 Clinical Nutrition	2
584 Small Animal Medicine and Surgery	8
586 Small Animal Surgical Exercises	1
	—
	22

Fourth Year

<i>Fall Term</i>	<i>Credits</i>
572 Senior Seminar	Req.
573 Large Animal Clinic	3
575 Ambulatory Clinic	3
577 Ancillary Clinics	3
589 Small Animal Medical Clinic	3
591 Small Animal Surgical Clinic	3
	—
	15

Spring Term

520 Community Health	2
572 Senior Seminar	Req.

Elective Blocks

Major Blocks	
574 Large Animal Surgical Clinic	4
576 Ambulatory/Mastitis Clinic	4
590 Small Animal Medicine Clinic	4
592 Small Animal Surgical Clinic	4
594 Large Animal Medicine Clinic	4
596 Opportunities in Vet. Med.	4

Minor Blocks

540 Cl. Path/Radiology Clinic	2
541 Necropsy Clinic	2
578 Anesthesia Clinic	2
580 Ophth/Derm Clinic	2
593 Ophthalmology Clinic	2
598 Dermatology Clinic	2
599 Ophth/Derm Clinic	2

Students must take course 520 and four of the elective blocks for a total of sixteen credits of course work.

Honor Societies

There are three honor societies for which students of the College of Veterinary Medicine are eligible.

Phi Zeta, founded in 1925 by the students of the New York State Veterinary College at Cornell University, strives for the constant advancement of the veterinary profession, higher educational requirements, and superior scholarship. The object of the society is to recognize and promote scholarship and research pertaining to the welfare and diseases of animals.

Sigma Xi. Any student or research staff member is eligible for membership in Sigma Xi, the Scientific Research Society of North America. It is the responsibility of the Admissions Committee of Sigma Xi to select for membership those individuals whose research aptitude or achievement deserves special recognition.

Phi Kappa Phi. The society of Phi Kappa Phi was founded in 1897 and soon became a national organization. Its primary objective is to recognize and encourage superior scholarship in all fields of study. Good character is an essential supporting attitude for those elected to membership.

Careers for Veterinarians

The function of the College of Veterinary Medicine is to educate young men and women to become practitioners, teachers, and research workers in the science and art of veterinary medicine. The College thus serves to protect the health of livestock, poultry, and companion animals, and to support public health programs.

The veterinary medical profession offers excellent opportunities for those who have an abiding interest in the diagnosis, treatment, and prevention of animal diseases. Like most medical careers, it is a way of life requiring strong vocational motivation and dedication. It is a demanding career. The work is often rigorous. The compensation varies greatly, but intelligent and conscientious service usually is rewarded by an adequate income. Those who are genuinely interested in the work have the satisfaction of serving a useful purpose. Some of the opportunities for veterinary graduates in the United States are described on the following pages.

Private Practice

Veterinary practice is a wide field with excellent opportunities for well-qualified persons. For several years the need for veterinarians in private practice has exceeded the supply. Practice may be general, in which the individual offers service for all species of animals. There is a trend toward restricted practice in which the veterinarian limits practice to small animals, cattle, horses, or poultry, etc. Some veterinarians, by virtue of advanced training and experience, become specialists and limit their work to narrow fields such as ophthalmology, orthopedics, diseases of reproduction, or other specialty areas. There is an accelerating trend toward partnership or group practice. Most graduates, to gain experience, have gone into private practice in the employ of an established veterinarian for at least one year.

Salaried Positions

Salaried positions are available with state and federal governments, pharmaceutical manufacturers, research institutions, universities, zoos, and a few large livestock farms. Generally these positions are filled by experienced practitioners or those who have had graduate training. There is expanding involvement in comparative medicine and aquatic animal medicine.

Private Corporation

Many veterinarians are employed by large stock and poultry farms, industrial laboratories that produce biologicals and pharmaceuticals for the prevention and treatment of diseases, and by companies whose products must be tested on animals. In certain areas of the country veterinarians play an essential role in the health and protection of horses at major race tracks.

Federal Governmental Agencies

The United States Department of Agriculture employs more veterinarians than any other single agency. The work is concerned for the most part with the prevention, control, and eradication of domestic and foreign infectious and parasitic diseases of milk- and meat-producing animals.

This service is also responsible for assurance of safe, wholesome, and accurately labeled food products of animal origin. Regulatory veterinary medicine, based upon sound veterinary medical knowledge, supported by effective legislation, is planned and carried out in ways that will achieve the desired results while interfering least with the economic life of the community and nation.

Many veterinarians in the United States Department of Agriculture are engaged, in well-equipped laboratories, in full-time research programs on diseases of animals of economic importance.

Veterinarians who are physically qualified and graduates of veterinary colleges acceptable to the Surgeon General of the United States Army and United States Air Force and who elect to go on active duty are eligible to make application for appointment. Qualified candidates are appointed in the grades of captain to colonel inclusive, the grade being determined by the age, professional experience, and professional qualifications of the applicant.

The United States Public Health Service employs veterinarians in the development and administration of programs concerned largely with the control of domestic and foreign animal diseases transmissible to man. The service cooperates extensively with international disease control agencies as well as with state governments. In addition to maintaining active programs in research laboratories of its own, the service engages in diversified contractual research programs with numerous academic institutions.

State Governments

Every state has a state veterinarian or similar officer, usually in the department of agriculture, whose

duties are to look after the health of animals by enforcing laws and regulations drawn for this purpose. In many states the state veterinarian has a corps of assistant veterinarians.

Many state health departments have one or more veterinarians on their staffs to advise on animal diseases that have significance in human health and to investigate outbreaks of such diseases.

Municipal Governments

Graduate veterinarians are employed as members of health departments by most cities on a full-time basis, and by many towns and villages on a part-time basis. Their duties usually are connected with the sanitary control of meat and milk and with the investigation of epidemics of food of animal origin.

Academic Institutions

Every veterinary college and many agricultural and medical colleges have a constant need to identify, recruit, and employ highly qualified veterinarians as teachers, researchers, public service specialists, and administrators. The opportunities here are numerous as more emphasis is placed on the many facets of academic veterinary medicine.

Legal Requirements

Before graduates can practice veterinary medicine in the United States they must obtain a license from the state or states in which they locate their practices. This license generally is issued by the Department of Education or the Department of Agriculture of the state on the basis of an examination set by a veterinary licensing board. Some states issue licenses without examination, based upon reciprocity when the applicant has been licensed in other states.

In New York, the licensing agency is the State Education Department. All inquiries should be addressed to the Secretary of the State Board of Examiners, Room 1841, Twin Towers, 99 Washington Avenue, Albany, New York 12210. Examinations are given twice a year. Applicants are required to furnish evidence of the following: (1) adequate preprofessional as well as professional education, (2) good moral character, and (3) being at least twenty-one years of age. Application for the examination must be filed at least sixty days before the schedule date and must be accompanied by a fee of \$140. Other details are available through the State Board of Examiners.

Health Services and Medical Care

Health services and medical care for students are centered in two Cornell facilities: the Gannett Medical Clinic (outpatient department), 10 Central Avenue, and the Sage Infirmary, on Sage Place. The entrance to the Infirmary is on East Seneca Street between Stewart Avenue and Schuyler Place, about five blocks from the edge of the campus. Students

are entitled to unlimited visits at the clinic. Appointments with individual doctors at the clinic should be made by calling 256-4082 or by visits, in person, to the clinic. (An acutely ill student will be seen promptly whether he or she has an appointment or not.) Students are also entitled to most laboratory and x-ray examinations. Hospitalization in the Sage Infirmary with medical care for a maximum of fourteen days each term and emergency care is also provided without additional cost. The cost of these services is covered by tuition.

If, in the opinion of the University authorities, the student's health makes it unwise to remain in the University, the student may be required to withdraw.

Student Accident and Sickness Insurance Plan

Cornell has a health insurance plan to supplement the services outlined above. (This plan may be waived if the student has other health insurance or is willing to accept the financial risk of no insurance.) For example, hospitalization in Sage Infirmary in excess of fourteen days a term, and expenses for illness or accidents outside Ithaca during the academic year and vacation periods will be covered by this insurance. Information about this insurance may be obtained at the Gannett Medical Clinic where a representative of the insurance company has an office.

Health Care Plan for Student Spouses

The University Health Services offers a prepaid health care plan for student spouses that is identical in benefits to the student health care. For the payment of a fee each term a student spouse is entitled to unlimited medical visits to Gannett Clinic, up to fourteen days each term for hospitalization in Sage Infirmary and emergency care. In addition, the Health Services will assume the cost of a first visit to a specialist (when referred by a Health Services physician). Other services are available at reduced cost to those who participate in this program.

Students may enroll their spouses prior to, or during the first thirty days of any term.

This primary care program is not to be confused with the Student Accident and Sickness Insurance Plan (for Cornell Students and their dependents). The student insurance supplements basic health care by providing twelve-month insurance coverage for students (and dependents) over and above benefits of the Health Services, and by protecting the students when they are away from the Cornell campus (e.g., vacations).

Information and enrollment forms for the Student Spouse Prepaid Health Care Plan may be obtained by writing or coming to the: University Health Services, Gannett Medical Clinic, Cornell University, 10 Central Avenue, Ithaca, New York 14853.

Emergency Service

Students who need medical attention during the hours the clinic is closed may go to Sage Infirmary. If an accident or serious illness occurs, the physician

on emergency service may be reached by calling 256-3493 during clinic hours or 272-6962 after clinic hours.

Housing and Dining Facilities

University Housing

Applications for all University housing should be made immediately upon provisional acceptance.

Cornell provides residential facilities on campus for about 5,500 students. These facilities are located in two areas that lie to the north and west of the central campus. Detailed descriptions of various housing accommodations is found in the booklet *Housing for Single Students*, which is mailed to candidates for admission upon notification of their acceptance to Cornell.

Students are not subject to a residence requirement, and should note that acceptance to Cornell University does not guarantee the availability of on-campus accommodations.

An application form for on-campus housing accommodations will be enclosed with the notice of provisional acceptance to each candidate from the Office of Admissions.

Information about available housing and rental rates may be obtained from the Student Housing Office, 223 Day Hall.

Graduate Students

University housing in residence halls is available to single graduate students upon application to the Student Housing Office, 223 Day Hall, Cornell University, Ithaca, New York 14853.

Sage Graduate Center provides housing for approximately 200 men and women. Situated in the center of the campus, it is convenient to all colleges. There is a cafeteria in the building. Cascadilla Hall accommodates approximately 160 graduate men and women. It is conveniently located just inside the southwest entrance to the campus. A third residence is a small apartment building, Thurston Court, housing 26 graduates. It is located just north of the Fall Creek Gorge on Thurston Avenue.

Student Families

The University maintains apartment accommodations for approximately 420 students and their families. These are Cornell Quarters, Pleasant Grove Apartments, and Hasbrouck Apartments. All accommodations are unfurnished. Requests for further information and application should be directed to the Family Housing Office, Building 40, Hasbrouck Apartments, Ithaca, New York 14850.

Off-Campus Housing

Information on housing that is currently available is posted on a board at the Student Housing Office, 223 Day Hall. Because changes of available accommodations occur daily, it is not practical to prepare

lists. If possible, a student should plan to visit Ithaca well in advance of residence in order to obtain suitable quarters off-campus.

Dining Services

Cornell University maintains dining services in ten locations—Willard Straight Hall, North Campus Union, Noyes Student Center, Balch Hall, Sage Hall, Hughes Hall, Noyes Lodge Pancake House, Risley Hall, the Statler Student Cafeteria, and the Dairy Bar. These facilities are open to all students on a cash or credit basis, whether or not they live in University residence halls or subscribe to a specific dining plan. The University has no formal dining requirements, allowing students the flexibility of eating when and where they choose.

For those students wishing to subscribe to a dining plan, the following options are offered: the Co-op Dining Program, prepaid each semester, allows students to eat all they want during specified times at five Co-op Dining centers (Willard Straight Hall, Noyes Student Center, North Campus Union, Sage Hall, and Balch Hall) at a food cost savings. Students participate in any one of eight Co-op plans. Students may choose from a wide selection of daily entrees, fresh fruits, vegetables, and salads and there are unlimited seconds. Co-op 2000 is a program specially designed for those who wish to eat sensibly. Co-op 2000 is administered by a registered dietitian who is available to counsel individuals on proper dining habits. Additional information may be obtained from Dining Services, 233 Day Hall, Cornell University.

Risley Dining Program, prepaid each semester, is primarily for residents of Risley Hall but is open to all. Additional information is available from the student-member Risley Dining Committee at Risley Hall, and also from Dining Services, 233 Day Hall, Cornell University.

Cornellcard, a credit card for those who do not wish to pay cash for each meal or be on the Co-op Dining Plan, is honored by the Department of Dining Services. The Cornellcard program is administered by the Bursar's Office. Information is available from the Bursar's Office, Cornell University, 260 Day Hall.

The Department of Dining Services also operates two grocery stores on campus, the Pick-Up in Noyes Lodge and the Mini-Pickup in Noyes Center. Also, major vending machine areas in Martha Van Rensselaer and Warren Halls and the Veterinary College offer hot and cold food and drinks. In these areas radar ovens are maintained for convenience in heating food.

Conduct of Students

Cornell students are expected to conduct themselves in a decent manner with respect for the integrity of the individual and the best interests of the community.

The standards of conduct expected of a Cornell veterinary student are defined by the Student Honor Code and various other Cornell regulations. The



Honor Code is implemented by a Student Administrative Board granted initial jurisdiction for student conduct by the faculty. A student may at any time be removed from the University by the faculty.

The College of Veterinary Medicine Student Honor Code has been established in recognition of the importance of ethics, honor, and personal integrity in the individual's training for the veterinary profession. The code places the responsibility for ethical and professional conduct upon the students. A copy of the Honor Code is given to each undergraduate and graduate student at the time of reg-

istration, and it is the student's duty to become familiar with the contents of the code and observe them during the four years in the College.

For student consultation and guidance, the College maintains an Office of Student Administration and has a Student/Faculty Liaison Committee, a Committee on Student Conduct, and class advisers. All academic actions are voted by the College of Veterinary Medicine faculty. A student may appeal to the faculty through the dean or the secretary of the College.



Description of Courses

Under each department heading, there are brief descriptions of the courses offered. Most of these courses are a part of the veterinary core curriculum; some are elective to veterinary students or are given primarily for graduate students or students of other colleges of the University.

The clinics are operated by several departments. A brief statement about the particular clinical work of each department concerned will be found in the general description of the activities of that department. A general statement of the operation of the clinics, with courses and numbers, is given under a special heading.

Courses in other colleges available to all Cornell students may be found in *Cornell University: Description of Courses*.

All academic courses of the University are open to students of all races, religions, ethnic origins, ages, sexes, and political persuasions. No requirement, prerequisite, device, rule, or other means shall be used by any employee of the University to encourage, establish, or maintain segregation on the basis of race, religion, ethnic origin, age, sex, or political persuasion in any academic course of the University.

Course Numbering System

500 series—D.V.M. core curriculum courses
600 series—Elective courses for D.V.M. and other students
700 series—Graduate-level courses

Anatomy

Professors H. E. Evans, chairman; A. deLahunta, R. E. Habel, W. O. Sack; Associate Professor J. F. Cummings; Graduate Assistants A. G. Watson, G. A. Chibuzo, I. Foss.

500 Gross Anatomy First year, fall term. Credit five hours. Prerequisite: course work equivalent to that required for admission to the veterinary college. Lecture T 9:05. Laboratory M T Th F 10:10-12:35. H. E. Evans, A. deLahunta, A. G. Watson, G. A. Chibuzo, I. Foss.

The structure of the typical mammal is studied by detailed systematic and regional dissection of the dog. The basic features of avian anatomy are studied by

dissection and the anatomy of laboratory animals is reviewed in appropriate species. The lectures, supplemented by demonstrations, consider the comparative and regional gross aspects of vertebrate organ systems, anatomical terminology, literature, techniques, and radiographic anatomy.

501 Gross Anatomy First year, spring term. Credit five hours. Prerequisite: Anatomy 500. Lecture Th 8. Laboratory M T W Th 2:05-4:25. W. O. Sack, A. G. Watson, G. A. Chibuzo, R. E. Habel, I. Foss. Regional anatomy of the horse, cow, sheep, and pig is studied by dissection with special attention to the anatomy of physiological processes and clinical procedures, and the veterinary public health inspection of food animals.

502 Developmental and Microscopic Anatomy First year, fall term. Credit three hours. Prerequisites: course work equivalent to that required for admission to the veterinary college and completion of, or concurrent registration in, Anatomy 500 or 700. Lecture M 8. Laboratory W 10:10-12:35, Th 2:05-4:25. A. deLahunta, J. F. Cummings, and assistants. The study of development is designed to provide a foundation for the understanding of definitive anatomy and the formation of anomalies. The latter part of the course is devoted to cytology and histology, illustrated with material from the domestic animals.

503 Microscopic Anatomy First year, spring term. Credit three hours. Prerequisites: Anatomy 502 and completion of, or concurrent registration in, Anatomy 501 or 700. Lecture T 9:05. Laboratory T F 10:10-12:35. J. F. Cummings, and assistants. The microscopic structure of the tissues and organs of domestic animals is studied. Illustrated lectures are presented to relate structure to function, correlate microscopic and gross anatomy, and establish a foundation for subsequent studies in physiology and pathology. Slides of tissues and organs are provided.

504 Neuroanatomy First year, spring term. Credit two hours. M 10:10-12:35, T 8. A. deLahunta. The nervous system of domestic animals is studied by functional systems. It is a vertically integrated course that includes the diagnosis of diseases of the nervous system. Clinical cases with pertinent lesions are demonstrated with each system.

26 Physiology, Biochemistry, and Pharmacology

505-506 Applied Anatomy Third year, fall term. Credit one hour. Laboratory T W or Th 2:05-4:25. R. E. Habel. Third year, spring term. Credit one hour. Laboratory T Th or F 2:05-4:25. R. E. Habel.

An opportunity for practice in the recognition of the anatomical features that are essential to diagnostic, surgical, obstetrical, and postmortem procedures. The approach is topographical, comparative, and clinical. The emphasis is on the study of living animals, supplemented by dissections, serial transections, models, and radiographs.

600 Special Projects in Anatomy Fall and spring term. By permission of instructor only. Hours to be arranged (one credit per 2½-hour period).

601 Advanced Anatomy Fall and spring terms. Hours and credit to be arranged. Prerequisites: Anatomy 500 and 502 or similar preparation in comparative anatomy, embryology and histology. A. deLahunta, H. E. Evans, W. O. Sack, J. F. Cummings, R. E. Habel. An opportunity for advanced study under personal faculty direction.

602 Advanced Clinical Neurology Spring term. Credit one hour. Prerequisite: first three semesters of veterinary curriculum. W 8. A. deLahunta. Correlation of anatomy, physiology, and pathology in the diagnosis and treatment of diseases of the nervous system and an understanding of their pathogenesis. Case demonstrations will be emphasized.

700 Vertebrate Morphology (also Bio Sci 414) Spring term. Credit three hours. Prerequisite: graduate status or Biological Sciences 273. Laboratory T Th 1:25-4:25. H. E. Evans. Designed for advanced students in animal and biological sciences. A dissection of the dog serves as the basis for a functional consideration of the component parts of mammalian organ systems. This is followed by a dissection of the cow. Other species (fish to mammal) of interest to the class may also be presented.

701 Comparative Anatomy of the Digestive System Fall term. Credit one hour. Prerequisite: Anatomy 500, 501, or 700 or a course in comparative anatomy. Embryology and histology are recommended. Lecture W 8. R. E. Habel. A general knowledge of the gross anatomy of each organ will be assumed, and emphasis will be placed on the micro-macroscopic muscular and vascular architecture, the innervation, and the functional cytology of the epithelium.

Physiology, Biochemistry, and Pharmacology

Professors C. E. Stevens, chairman; A. L. Aronson, E. N. Bergman, A. Dobson, T. R. Houpt, A. F. Sellers, J. F. Wootton; Associate Professors W. J. Arion, W. S. Schwark; Assistant Professor K. A. Houpt; Research Associates C. J. Drost, R. N. Heitmann, D. Herschel; Postdoctoral Associate J. Brondum; Graduate Assistants S. M. Anika, L. M. Ballas, K. Munkenbeck, H. Walls, T. Wolski

The following fields of activity are covered in the work of the department: biochemistry, physiology, pharmacology, and toxicology.

525 Vertebrate Biochemistry Fall term. First-year veterinary students or consent of the instructors. Credit four hours. Prerequisite: Biological Sciences 330-331 (432-431) or an equivalent course in general biochemistry. Training in quantitative analysis is recommended. Lectures M W F 9:05. Discussion Th 9:05. Laboratories (alternate weeks) M T 2:05-4:25. W. J. Arion, L. M. Ballas, and staff. An intermediate-level course correlating the metabolic, structural, and functional characteristics of tissues. Metabolic integration and regulation are emphasized.

526 Physiology for Veterinary Students First year, spring term. Credit four hours. Prerequisites: Physiology 525, Anatomy 500 and 501, or Anatomy 700 and Biological Sciences 330-331 Principles of Biochemistry. Lecture M W F 9:05. Laboratory W or Th 9:05-12:35. K. A. Houpt, T. R. Houpt, A. F. Sellers.

527 Physiology for Veterinary Students Second year, fall term. Credit four hours. Prerequisite: Physiology 526. Lecture M T 8, Th 1:10. Laboratory M 1:10-4:40 or W 9:05-12:35. A. F. Sellers, C. E. Stevens.

528 Basic Pharmacology Second year, spring term. Credit four hours. Prerequisites: Anatomy 500, 501, 502, 503, 504; Physiology 525, 526, 527; Pathology 535 or consent of the instructors. Lectures M, Th 8. Laboratory T 1:05-4:25. A. L. Aronson, W. S. Schwark. Factors governing the physiological disposition of drugs and poisons will be emphasized together with a consideration of the action of drugs affecting the nervous system. A number of toxicological topics are covered in this course and antibacterial chemotherapy and endocrine pharmacology are introduced.

529 Clinical Pharmacology Third year, fall term. Credit two hours. Prerequisite: Pharmacology 528 or consent of the instructors. Lectures Th F 10:10. A. L. Aronson, W. S. Schwark. Given in conjunction with Clinical Course 579 and will consider aspects of the clinical use of drugs to treat disease processes.

620 Special Projects in Physiology Fall or spring term. By permission of instructor only. Hours to be arranged.

621 Toxicology Spring term for second-, third-, or fourth-year students. One credit. Grading is S-U. F 2:05. A. L. Aronson, W. S. Schwark. Basic and clinical aspects of the more common poisonings that affect domestic animals will be considered. Emphasis will be given to heavy-metal poisoning; chelation phenomena; selected organic poisonings including pesticides, herbicides, and rodenticides, and forensic considerations.

622 Special Projects in Pharmacology Fall, spring, or summer term. Hours to be arranged. By

permission of instructor only. A. L. Aronson, W. S. Schwark.

626 Veterinary Animal Behavior Spring term for all veterinary students. Credit two hours. M 1:05, F 2:05-4:25. K. A. Houpt.
The behavior of animals of interest to veterinarians. Dogs, cats, cattle, horses, sheep, and swine will be studied in depth; other species such as goats, rabbits, and chickens will be studied in less detail. The course will utilize both ethology and physiological psychology as approaches to animal behavior. The purpose will be not only to present the facts of animal behavior, but also to help the student to critically evaluate behavioral studies.

720 Special Problems in Physiology Fall or spring term. Hours to be arranged. Registration by permission.
Laboratory work, conferences, collateral reading, and reports, adapted to the needs of students.

721 Research Fall or spring term. Graduate students only. Hours to be arranged.

722 Methods in Gastroenterological Research Spring term. Credit four hours. Prerequisites: Biological Sciences 414 and a course in biochemistry, or Physiology 527 or equivalent and consent of instructor. Enrollment limited, preregistration essential. Two lectures and one six-hour laboratory a week; times to be arranged. C. E. Stevens and associates.
Experience with a variety of current physiological techniques for the study of the functions of the gastrointestinal tract with special emphasis on their limitations.

723 Comparative Gastroenterology Fall term. Credit three hours. M T 8, Th 1:10. Prerequisites: courses in general mammalian physiology, biochemistry, and nutrition, and consent of instructor. C. E. Stevens, H. F. Hintz, L. P. Krook, R. H. Wasserman.
Lectures will emphasize (1) functional comparison of invertebrate and vertebrate digestive systems, (2) preparations and procedures used to study the function or malfunction in these systems, and (3) digestive tract diseases.

724 Physiologic Disposition of Drugs and Poisons Spring term. Credit two or three hours. Prerequisites: a course in biochemistry and consent of the instructor. M Th 8, T 1:05. A. L. Aronson, W. S. Schwark.
The morning sequence (2 credits) will include the factors governing the physiological disposition of drugs and poisons, drug-receptor interactions, selected aspects of cellular pharmacology, autonomic pharmacology, and an introduction to antibacterial chemotherapy. The afternoon sequence (1 credit) will include the action of drugs affecting the central nervous system, as well as endocrine pharmacology.

725 Vertebrate Biochemistry Lectures Fall term. Credit three hours. Prerequisite: Biological Sciences 330-331 (432-431) or an equivalent course in general biochemistry. Offered to graduate and upper-division students. M W F 9:05. W. J. Arion.

An intermediate-level course correlating the metabolic, structural, and functional characteristics of tissues. Metabolic integration and regulation are emphasized.

726 Physiology Spring term. Credit three hours. For graduate students. Prerequisites: Biochemistry 525, Anatomy 500 and 501, or Anatomy 700. M W F 9:05. K. A. Houpt, T. R. Houpt, A. F. Sellers.
Lectures and demonstrations on cellular physiology, muscle, nervous system, respiratory system, urine secretion, blood, and lymph.

727 Physiology Fall term. Credit three hours. For graduate students. Prerequisite: Physiology 726. M T 8, Th 1:10. A. F. Sellers, C. E. Stevens.
Lectures and demonstrations on circulation, digestion, endocrine organs, metabolism, and reproduction.

Physical Biology/Section of Physiology

Professors D. N. Tapper, acting chairman; E. L. Gasteiger, F. W. Lengemann, R. H. Wasserman; Associate Professors A. P. Casarett, F. A. Kalilfelz, J. C. Thompson, Jr.; Assistant Professors E. R. Loew, C. B. Quick, V. T. Rendano; Visiting Lecturer T. Oku; Senior Research Associates R. A. Corradino, F. L. Hiltz, H. Moraff, R. A. Wentworth; Research Associates H. J. Armbrrecht, C. S. Fullmer, S. I. Koo; Graduate Assistants R. Allhands, F. Barken, W. Beilman, A. Craig, J. Feher, R. Paul, N. Rackovsky, L. Weissberger, J. Zimmer

The department is well equipped for advanced work in the applications of physical and biochemical methods to problems of animal and biological research. The following research areas are emphasized: a) computer-informational systems, b) environmental contamination, c) membrane transport, d) mineral metabolism, e) neurophysiology, f) physical methods in veterinary medicine, g) radiation biology, and h) veterinary nuclear medicine.

The Department of Physical Biology has recently become the nucleus of the newly-created Section of Physiology of the Division of Biological Sciences. The primary responsibility of this new section is the teaching and training of undergraduate students of the University in the physiological disciplines, an activity in which this department has been involved for the past several years. The section includes joint appointees from other departments of the College and of the University, and expands the role of the College in University-wide educational activities and provides a means of additional interaction for other Colleges of the University and the College of Veterinary Medicine.

Bio Sci 274 The Vertebrates Spring. 5 credits. Primarily for sophomores; this course is a prerequisite for many advanced courses in vertebrate biology, anatomy, and physiology. Lab limited to 21 students each section. Prerequisite: 1 year of introductory biology for majors. Lec, T Th 10:10; lab, M W 1:25-5, M W 7-10 p.m., or T Th 1:25-5. 1 midterm exam given at 7:30 p.m. Staff.
An introduction to the evolution, classification,

comparative anatomy, life history, and behavior of vertebrate animals. Laboratory dissection and demonstration are concerned with structure, classification, systematics, biology of species, and studies of selected aspects of vertebrate life.

Bio Sci 310 Invertebrate Zoology Fall or [spring]. 4 credits. Enrollment limited, with preference given to upperclass students. Prerequisite: 1 year of introductory biology for majors. Offered fall semester only in 1977-78. Lec, W F 11:15; lab, W F 2-4:25. Each student will be expected to do a significant amount of independent work and a term paper may be required. J. M. Anderson.

Lectures on selected topics in the development, structure, function, and interrelations of invertebrate animals, with particular attention to phylogenetic aspects. Intensive laboratory work on representative invertebrates, utilizing living or fresh specimens wherever possible.

Bio Sci 312 Anatomy of the Gull Summer. 1 credit. S-U grades only. Prerequisite: 1 year of introductory college biology. Daily lectures, lecture-demonstrations, and laboratories for 1 week. H. E. Evans.

The functional anatomy of all organ systems with emphasis on sensory, nervous, digestive, and respiratory systems.

A special course offered at the Shoals Marine Laboratory of Cornell University on an island off Portsmouth, N.H. For more details and applications, consult the Office of Marine Biology, 202 Plant Science Building.

Bio Sci 313 Histology: The Biology of the Tissues Fall. 4 credits. Prerequisite: 1 year of introductory biology; a background in vertebrate anatomy and organic chemistry or biochemistry strongly recommended. Lec, T Th 11:15; lab, T Th 2-4:25. W. A. Wimsatt.

Provides the student with a basis for understanding the microscopic, fine structural, and functional organization of vertebrates as well as the methods of analytic morphology at the cell and tissue levels. The dynamic interrelations of structure, composition, and function in cells and tissues are stressed.

Bio Sci 315 Ecological Animal Physiology, Lectures Fall. 3 credits. Prerequisite: 1 year of introductory biology for majors. Offered fall 1977, fall 1978, and alternate years thereafter. Lec, M W F 10:10. W. N. McFarland, F. H. Pough.

An introductory course for students interested in ecology and physiology. The characteristics of the physical environment that are important to organisms are discussed; and the physiological, behavioral, and morphological adaptations of vertebrate and invertebrate animals to environment are analyzed.

Bio Sci 317 (315) Ecological Animal Physiology, Laboratory Fall. 1 credit. Limited to 12 students. Prerequisite: concurrent enrollment in 315. Offered fall 1977, fall 1978, and alternate years thereafter. Lab, W or Th 1:25-4:25. W. N. McFarland, F. H. Pough.

Exercises involve measurements of important environmental factors in local habitats, laboratory experiments

to familiarize students with the use of physiological methods, and an individual student research project dealing with specific adaptations of organisms to environment.

Bio Sci 318 Cellular Physiology Summer. 3 credits. Prerequisites: 1 year of introductory biology and chemistry, or permission of instructor. Lec, M T W Th F 11-12:15 for 6 weeks. M. V. Hinkle.

A basic course on physiological processes at the cellular level. Particular emphasis is placed on eucaryotic cells and on membrane-related phenomena. Topics include active, passive, and bulk transport across membranes; structure and function of cell organelles; cell growth and proliferation; intercellular communication; excitability; contractility; and specialized cells of the immune, endocrine, and neuromuscular systems. Course may be used as an introduction to organ or medical physiology.

VM 346 Introductory Animal Physiology, Lectures (also Bio Sci 314) Spring. 4 credits.

Prerequisites: 1 year of college biology, chemistry, and mathematics. Offered spring 1978; next offered fall 1978 and fall semesters thereafter. Lec, M W F 11:15; discussion to be arranged. 3 preliminary exams given at 7:30 p.m. D. N. Tapper.

A general course in vertebrate physiology emphasizing the basic characteristics of the circulatory, nervous, pulmonary, renal, and gastrointestinal systems; energy metabolism; endocrinology; and reproductive physiology. Neural and hormonal control of function is emphasized.

[VM 348 Introductory Animal Physiology, Laboratory (also Bio Sci 316)] Spring. 1 credit.

Limited to 100 students, with preference given to students concentrating in animal physiology. Prerequisite: concurrent or previous enrollment in VM 346. Not offered 1977-78; next offered fall 1978 and fall semesters thereafter. Lab, M T W or Th 1:25-4:25. Each student must attend a lab on alternate weeks. D. N. Tapper.

Laboratory sessions will consist of demonstrations, instructor-assisted experiments, and student-run experiments covering the nervous, pulmonary, renal, circulatory, and gastrointestinal systems.]

Bio Sci 410 Seminar in Anatomy and Physiology

Fall or spring. 1 credit. May be repeated for credit only once. S-U grades only. Limited to upperclass students. Hours and topics to be arranged. Organizational meeting first Tuesday of each semester at 7:30 p.m. in Biology Center (Stimson G-20). Staff (Coordinator D. N. Tapper).

Bio Sci 412 Special Histology: The Biology of the Organs Spring. 4 credits. Limited to 12 students.

Prerequisite: 313 or written permission of instructor. Offered in alternate years. Lec, W F 9:05; lab, W F 2-4:25. W. A. Wimsatt.

A continuation of 313. The microscopic and ultrastructural organization of the principal vertebrate organ systems are studied in relation to their development, functional interaction, and special physiological roles. Courses 313 and 412 together present the fundamental aspects of the microscopic and sub-

microscopic organization of the vertebrate. The organization of the course involves student participation in lecture-seminars, and the prosecution of independent project work supplementary to the regular work of the laboratory. The latter enables students to gain practical experience with histological and histochemical preparative techniques.

Bio Sci 416 General Animal Physiology: A Quantitative Approach, Lectures Spring. 3 credits. S-U grades optional. Prerequisites: 1 year of biology and physics; courses in chemistry, organic chemistry, biochemistry, and computing recommended. Lec, M W F 10:10. H. C. Howland. The principles of animal physiology are developed through consideration of the functioning of cells, tissues, and organs. Specific topics discussed include respiration, metabolism, circulation, excretion, body mechanics, muscle contraction, nerve action, sensory reception, and central nervous system function. A quantitative, systems-theoretical approach is emphasized.

Bio Sci 418 General Animal Physiology, Laboratory Spring. 2 credits. Prerequisite: concurrent enrollment in 416 or equivalent. Lec, 1 hour to be arranged; lab, M T or Th 1:25-4:25. H. C. Howland. Students are introduced to basic techniques utilized in the study of the physiology of animal tissues. Experiments cover topics dealing with respiration, properties of muscle, circulation, activity of nerves, and osmotic phenomena.

Bio Sci 419 Undergraduate Research in Animal Physiology and Anatomy Fall or spring. Variable credit. S-U grades optional. Undergraduates must attach to their preregistration material written permission from the staff member who will supervise the work and assign the grade. Hours to be arranged. Staff. Practice in planning, conducting, and reporting independent laboratory and/or library research programs.

VM 550 Applied Radiation Biology and Veterinary Nuclear Medicine Third year, fall term. Credit one hour. M 11:15. A. P. Casarett. Lectures on the nature of radiation, effects on cells and tissues, and diagnostic and therapeutic applications in veterinary medicine.

VM 600 Graduate Research in Animal Physiology and Anatomy (also Bio Sci 719) Fall or spring. Variable credit. S-U grades optional. Prerequisite: written permission of section chairperson and staff member who will supervise the work and assign the grade. Hours to be arranged. Department of Anatomy Staff. Similar to Bio Sci 419, but intended for graduate students who are working with faculty members on an individual basis.

[Bio Sci 612 Comparative Physiology, Lectures Spring. 2 credits. Limited to 12 students. Prerequisites: concurrent enrollment in 614 and a background in chemistry (inorganic, organic, and biochemistry) and physics in addition to a course in physiology;

Bio Sci 274 and Bio Sci 310 strongly recommended. Offered in alternate years. Not offered 1977-78. Lec, W F 11:15. J. W. Hudson. Lectures emphasize the comparison of physiological processes of organs and organ systems in various invertebrate and vertebrate classes in relation to their evolution and environmental adaptation.]

[Bio Sci 614 Comparative Physiology, Laboratory Spring. 2 credits. Limited to 12 students. Prerequisites: concurrent enrollment in 612 and written permission of instructor. Offered in alternate years. Not offered 1977-78. Lab, T Th 1:25-4:25. J. W. Hudson. Laboratories will involve measurements of cardiovascular, respiratory, muscular, excretory, endocrine, alimentary, thermoregulatory, and nervous system function in selected invertebrates and vertebrates.]

Bio Sci 619 Lipids (also Nutritional Sciences 602) Fall. 2 credits. Lec, T Th 11:15. A. Bensadoun. Advanced course on biochemical, metabolic, and nutritional aspects of lipids. Emphasis is placed on critical analysis of current topics on lipid methodology; lipid absorption; lipoprotein secretion, structure, and catabolism; mechanism of hormonal regulation of lipolysis and fatty acid synthesis; and cholesterol metabolism and atherosclerosis.

VM 650 Special Projects in Physical Biology Fall or spring term. By permission of instructor only. Hours to be arranged.

[VM 651 Veterinary Statistics Spring term 1977 and alternate years. Credit two hours. For all veterinary students who want to acquire a basic knowledge of statistics in the process of learning more about the supply, demand, income, and distribution of veterinary practitioners. W 8, F 2:05-4:25. J. C. Thompson, Jr. A basic course in the use of various statistical techniques to examine veterinary data developed by the U.S. Census Bureau and other government, institutional, and commercial agencies. The data will be used to demonstrate statistical techniques ranging from simple aggregation procedures and measures of dispersion to the use of various statistical tests and their application. Emphasis will focus on the distribution of veterinarians by geographical area and the types of practice (large and small animals, research, public health, teaching, etc.), income per establishment, and demand-supply relationships. Statistical analysis of the data will provide information useful for estimating veterinary trends and opportunities.]

[VM 652 Applied Electrophysiology Spring term. For second- and third-year students. Credit two hours. Lecture W 11:15. Demonstration laboratory F 2:05-4:25. E. L. Gasteiger. Lecture and demonstration laboratory emphasizing electroencephalographic and electromyographic techniques for study of the nervous and muscular systems in normal and diseased states.]

[VM 653 Clinical and Research Techniques in Veterinary Nuclear Medicine Fall term. Credit two hours. Intended primarily as an elective course for veterinary students. Prerequisites: Physical Biology

550 or equivalent, Pathology 636 or equivalent, and/or permission of the instructor. Not offered 1977-78. One lecture and one laboratory; time to be arranged. F. A. Kallfelz, F. W. Lengemann. Lectures and laboratory exercises concerning the theoretical and technical aspects of radioisotope procedures of particular relevance to clinical veterinary medicine and veterinary research. Topics include nuclear detection instrumentation, intestinal absorption, blood volume, milk volume, autoradiography, whole body counting, bone scanning, radioimmunoassay, and renal and thyroid function tests. Clinical cases will be used as available.]

[VM 654 Special Topics in Mineralized Tissues]

Fall term. Credit two hours. Prerequisites: biochemistry or physiological chemistry and animal physiology. Not offered 1977-78. Two lectures per week. Elective course. R. H. Wasserman, R. A. Corradino, L. P. Krook. Introduction to the histology, anatomy, and pathology of bones and teeth, kinetics of bone and bone minerals, biochemistry of calcification, factors affecting calcium and bone metabolism (parathyroid hormone, calcitonin, vitamin D, trace elements, etc.) bone-seeking radionuclides, and calcium homeostatic mechanisms.]

Bio Sci 654 Mammalian Physiology, Lectures I

Spring. 3 credits. Prerequisite: VM 346 or equivalent. Primarily for graduate students; written permission of instructor required for undergraduates. Enrollment limited. May be taken before or after 655. Lec, M W F 8. Staff.

Lectures will include the cardiovascular system, the autonomic nervous system, respiration, kidney function, and acid-base balance.

[Bio Sci 655 Mammalian Physiology, Lectures II]

Fall. 3 credits. Prerequisite: VM 346 or equivalent. Primarily for graduate students; written permission of instructor required for undergraduates. Enrollment limited. May be taken before or after 654. Not offered 1977-78; first offered fall 1978. Lec, M W F 8. Staff.

Lectures will include the somatic nervous and sensory systems, endocrinology, skeletal muscle, digestion and metabolism, growth, and lactation.]

Bio Sci 656 Mammalian Physiology, Laboratory

Spring. 3 credits. Primarily for graduate students; written permission of instructor required for undergraduates. Enrollment limited. Prerequisites: some experience in experimental methods and concurrent enrollment in 654 strongly recommended. Lab, M or W 1:25-4:25; discussion, S 10:10. Staff. Advanced experimental methods dealing with physiology of circulation, cardiac function, respiration, acid-base balance, endocrinology, the nervous system, muscle, and digestion. The laboratory exercises are designed to illustrate basic physiological principles in mammals.

VM 700 Vertebrate Morphology (also Bio Sci 414)

Spring. 3 credits. S-U grades optional. Prerequisite: graduate standing, or Bio Sci 274 or equivalent. Lab, T Th 1:25-4:25. H. E. Evans.

Student dissections of the dog serve as the basis for a functional consideration of the major component parts of the body and its organ systems. This is followed by a dissection of the cow. Other species (fish to mammal) of interest to members of the class may also be dissected.

VM 750 Radioisotopes in Biological Research

(also Bio Sci 616) Spring term. Credit four hours. Prerequisites: courses in animal or plant physiology and quantitative chemistry, or permission of the instructor. Lectures T Th 11:15. Laboratory T or W 1:25-5. F. W. Lengemann and staff. Lectures and laboratories will deal with the radioisotope as a tool in biological research. Among the topics considered will be the utilization and detection of beta-emitting isotopes, gamma spectrometry, Cerenkov counting, neutron activation, autoradiography, whole body counting and bone scanning. Particular emphasis is placed on liquid scintillation counting, double label experiments, and on ^{14}C and ^3H as metabolic tracers. Experiments are designed to present basic principles while utilizing plants and/or animals as the subject material.

[VM 751 Biological Effects of Radiation]

Fall term. Credit three hours. Not offered 1977-78. Lecture T Th 10:10. Laboratory Th 1:30-4:25. A. P. Casarett.

Lectures and laboratories on radiation physics, radiation chemistry, radiation effects at the cellular level, radiation effects in multicellular organisms, genetic effects of radiation, and environmental considerations.]

[VM 752 Biological Membranes and Nutrient Transfer (also Bio Sci 618)]

Spring. 2 credits. Prerequisites: courses in animal or plant physiology, quantitative and organic chemistry, and physics, and permission of instructor; courses in cellular physiology and elementary physical chemistry recommended. Offered in alternate years. Not offered 1977-78. Lec, T Th 11:15. R. H. Wasserman. An introduction to elementary biophysical properties of biological membranes; theoretical aspects of permeability and transport; and mechanism of transfer of inorganic and organic substances across intestine, placenta, kidney, erythrocytes, bacteria, and other biological systems.]

VM 755 Physical Biology Graduate Seminar

Fall and spring terms. Credit one hour. R. H. Wasserman and staff.

VM 758 Molecular Mechanisms of Hormone Action (also Bio Sci 658)

Spring. 2 credits. S-U grades optional. Prerequisite: permission of instructor. Offered in alternate years. T Th 8. R. A. Corradino. An advanced course developed from the current literature on endocrine mechanisms. Student presentation of selected topics required.

[VM 759 Nutrition and Physiology of Mineral Elements (also Bio Sci 615 and Nutri Sci 659)]

Fall. 2 credits. Prerequisites: courses in basic physiology, intermediate biochemistry, and general nutrition. Offered in alternate years. Not offered

1977-78. Lec, T Th 8. R. H. Wasserman, R. Schwartz, D. R. VanCampen.

Lectures on nutritional aspects, and physiological, biochemical, and hormonal relationships of the prominent macroelements and microelements, with emphasis on recent developments. Included will be information on methodologies of mineral research and the chemistry of ions and complexes; and essentiality, requirements, transport, function, homeostasis, interrelationships, and toxicity of various mineral elements.]

Animal Reproduction and Development (Animal Sciences 220)

Fall. 4 credits. Lab limited to 36 students each section. Prerequisite: 1 year of college biology or equivalent. Lec, T Th 9:05; lab and demo, M T W Th or F 2-4:25, T 10:10-12:35, or F 11:15-1:25. R. H. Foote.

An introduction to the comparative anatomy and physiology of reproduction of farm animals. The life cycle from fertilization through development and growth to sexual maturity will be studied, with emphasis on physiological mechanisms involved, relevant genetic control, and the application to fertility regulation of animal and human populations. An audiotutorial laboratory is available for independent study to prepare for laboratory experiments.

Fundamentals of Endocrinology (Animal Sciences 427)

Fall. 4 credits. Prerequisite: a course in human or veterinary physiology, or permission of instructor. Lec, T Th S 10:10; lab, T or Th 1:25-4:25. W. Hansel.

The physiology of the endocrine glands and the roles played by each hormone in the regulation of normal body processes. The laboratory work consists of a series of experiments designed to illustrate the basic principles of endocrinology.

Comparative Physiology of Reproduction of Vertebrates, Lectures (Animal Sciences 428)

Spring. 2 credits. Prerequisite: Anim Sci 427 or permission of instructor. Lec, W F 1:25. A. van Tienhoven. Sex and its manifestations. Neuroendocrinology, endocrinology of reproduction, sexual behavior, gametogenesis, fertilization, embryonic development, oviparity, viviparity, environment and reproduction, and nutrition and reproduction.

Comparative Physiology of Reproduction of Vertebrates, Laboratory (Animal Sciences 429)

Spring. 2 credits. Prerequisite: concurrent or previous enrollment in Anim Sci 428, or permission of instructor. Lab, to be arranged; organizational meeting F 2:30. A. van Tienhoven.

The laboratory provides students with an opportunity to design and execute independently experiments with limited objectives.

Pathology

Professors Robert M. Lewis, chairman; J. Bentinck-Smith, C. I. Boyer, L. Coggins, J. R. Georgi, L. Krook, K. McEntee, F. M. Noronha, C. G. Rickard, J. H. Whitlock; Adjunct Professor K. E. Wolf; Associate Professors J. M. King, R. R. Minor, H. F. Schryver, D. O. Slauson; Assistant Professors J. A. Carlisle,

G. L. Cockerell, R. H. Jacobson; Adjunct Assistant Professor G. V. Lesser; Senior Research Associates R. B. Baggs, M. J. Kemen; Interns H. Abid, R. Clark, B. Cooper, H. Gelberg, R. Gunther, R. Masake, P. Meunier, R. Weiss, M. Wolfe; Graduate Assistants A. Al Darraji, A. Antillon, R. Elston, W. Haschek, B. Summers, S. Wade, Y. Yuan; Graduate Students P. Frelief, Bristol Resident C. Wimberly

The department is well equipped with modern facilities to provide opportunity for advanced work in necropsy and surgical pathology, immunopathology, parasitology, nutritional pathology, laboratory animal pathology, laboratory diagnostic methods, oncology, and electron microscopy. The department maintains a necropsy service, tissue culture and virology laboratories, and two electron microscope laboratories. These facilities provide an abundance of pathological material for teaching and research purposes. Clinical cases that have been adequately examined by clinical methods are available for necropsy study.

The following courses are given particularly for veterinary students. Courses in the 500 series are required. When there is room for them, properly prepared students of other colleges will be admitted, but permission to register must be obtained.

330 Introductory Parasitology and Symbiology

Spring term. Credit three hours. Prerequisite: one year of biology. Lecture T Th 11:15. Laboratory T 2-3:20 and one hour by appointment. J. H. Whitlock, J. R. Georgi.

A study of unrelated species living together in intimate physiological association. Parasitoses that result in disease in the host are presented as important and special cases of the symbiotic spectrum. Emphasis is placed on an integrative study of the causation of disease in human beings and in cultivated and natural populations of plants and animals. The biological functions of disease and the impact of human activities on the disease structure of populations is examined. Laboratory exercises will involve a broad range of symbiotes and pathogens from viruses to nemas and arthropods.

440 Parasitic Helminthology

Spring term. Credit three hours. Prerequisites: one year of biology and VM 330 or equivalent. Limited to ten students. Two laboratories (time to be announced) and one hour by appointment. J. R. Georgi, J. H. Whitlock.

A study of the systematics and bionomics of parasitic platyhelminthes and nemathelminthes with emphasis on the experimental methodology of modern helminthology. Laboratory exercises include preparation of specimens for microscopic examination, identification of specimens, artificial culture and manipulation of life cycles, and investigation of host-parasite interactions. A term report based on experimental findings and a review of the relevant literature is required.

535 Veterinary Pathology I

Second year, fall term. Credit four hours. Prerequisites: Anatomy 502 and 503 or equivalent histology courses. Nonveterinary medical students also require permission of instructor. Lecture T F 9:05. Laboratory T F 10:10-12:35. Dr. D. O. Slauson.

A study of disease processes beginning at the cellular level and progressing to selected body systems. Cellular pathology, injury and death at the cellular and tissue level, derangements in body fluids and blood flow, inflammation and repair, the nature and causes of tissue injury, abnormalities of cell growth, neoplasia, and the relationship of genetics to disease are discussed as general processes at a mechanistic level. These basic pathogenetic processes are subsequently applied to the diseases occurring in complex organ systems such as the skin, endocrine, and reproductive systems, which serves as a bridge between Veterinary Pathology I and Veterinary Pathology II.

536 Veterinary Pathology II Second year, spring term. Credit five hours. Prerequisites: Veterinary Pathology I (535). Lecture T Th 9:05, W 11:15-12:20. Laboratory T Th 10:10-12:35. R. M. Lewis and staff.

A systematic study of the diseases in each major organ system with emphasis on differential diagnostic features, and the correlation of disturbed function with morphologic change.

537 Veterinary Parasitology Second year, fall term. Credit four hours. Prerequisite: zoology or biology. Lecture M Th 9:05. Laboratory M Th 10:10. J. R. Georgi.

A systematic study of the helminth and arthropod parasites of domestic animals with particular emphasis on diagnosis, treatment, and control of parasitisms of veterinary and public health importance.

539 Introduction to Laboratory Animal Medicine Third year, fall term. Credit one hour. Prerequisites: Pathology 535 and 536. Lecture M 10:10. C. I. Boyer, Jr. and staff.

An introduction to the biology and diseases of common laboratory animal species including mice, rats, hamsters, guinea pigs, rabbits, and nonhuman primates. Exotic species including amphibia, reptiles, and exotic cats are also discussed. Practical means of diagnosis and treatment are emphasized. The course also provides an overview of the many aspects of laboratory animal medicine as practiced in academics, industry, and research.

571 Clinical Pathology J. Bentinck-Smith, J. B. Tasker. See Clinical Course 571, p. 38.

635 Special Problems in Pathology Fall or spring term. By permission of instructor only. Hours to be arranged. R. M. Lewis.

636 Wildlife Pathology Fall term. Credit two hours. Veterinary elective course for first-, second-, or third-year students. Lecture W 8. Laboratory W 2:05-4:25. J. M. King.

A presentation of the nature and causes of diseases of wild rabbits, opossums, squirrels, deer, certain water fowl, and some other species. Emphasis on epizootiology, etiology, pathogenesis, diagnostic lesions, and effects on populations. Laboratory experience in specimen collection and necropsy techniques. Guest lectures by members of the Department of Natural Resources on ecology and population dynamics.

637 Postmortem Pathology Fall term. Credit one hour. Veterinary elective course for first-, second-, or third-year students. Lecture F 2. J. M. King. A presentation of gross and microscopic lesions of diagnostic significance, employing color projection slides as illustrations. Emphasis on pathological and differential diagnosis of a wide spectrum of viral, metabolic, bacterial, parasitic, and other diseases.

638 Microscopy Fall or spring term. Credit two hours. Veterinary elective for any class. Lecture W 8. Laboratory W 7-9 p.m. R. Smith, J. Bentinck-Smith. An illustrated presentation of practical microscopy including light, darkfield, phase contrast, and photomicroscopy.

736 Pathology of Nutritional Diseases Spring term. Credit three hours. For graduate students in pathology or nutrition, and as elective course for veterinary students at sophomore level or above. Prerequisite: Pathology 535. Lecture W 8. Laboratory W 2:05-4:25. L. P. Krook.

737 Advanced Work in Animal Parasitology

Fall or spring term. Credit one to three hours by arrangement. For advanced undergraduate and graduate students. Prerequisite: Pathology 330 or 537. J. H. Whitlock, J. R. Georgi. Special problems in parasitology and symbiology.

739 Advanced Work in Pathology Fall or spring term. Credit one to three hours by arrangement. Properly prepared students may undertake special problems or receive special assignments. R. M. Lewis and staff.

740 Reproductive Pathology Spring term. Credit one or two hours. Elective. Prerequisites: 535 and 536. Lecture W 8; laboratory W 9-11:30. K. McEntee.

741 Care and Management of Laboratory

Animals Fall term. Credit two hours. Prerequisite: permission of instructor. Hours to be arranged. R. B. Baggs, C. I. Boyer, Jr. Each species of laboratory animal common to biomedical research is discussed with regard to anatomical and physiological characteristics, breeding, nutrition, and husbandry. Specialized husbandry methods including gnotobiotic and specific-pathogen-free facilities are presented as well as the characteristics and management of exotic laboratory animal species.

744 Diseases of Laboratory Rodents and Rabbits Fall term. Credit three hours. Prerequisite:

permission of instructor. Hours to be arranged. C. I. Boyer, Jr. and staff. Detailed discussions of infectious and non-infectious (metabolic-degenerative) diseases of mice, rats, hamsters, guinea pigs, and rabbits. Diagnostic methods and preventive medicine are stressed.

745 Diseases of Nonhuman Primates Spring term. Credit three hours. Prerequisite: permission of instructor. Hours to be arranged. R. B. Baggs. Detailed discussions of infectious and non-infectious (metabolic-degenerative) diseases of nonhuman primates commonly used in biomedical research.

Diagnostic methods, preventive medicine, and zoonotic aspects of various diseases are emphasized.

746 Comparative Pathology Spring term. Credit three hours. Prerequisite: permission of instructor. Hours to be arranged. R. M. Lewis, G. C. Poppensiek, and staff.

A presentation of spontaneous animal diseases which are considered analogs of the same diseases in man. Experimentally induced conditions and the relevancy of each model are discussed.

747 Laboratory Animal Genetics Fall term. Credit one hour. Prerequisite: permission of instructor. Hours to be arranged. C. I. Boyer, Jr. and staff. Discussions of specialized areas of genetics and their application to laboratory animals and biomedical research. Topics include introductions to cytogenetics, immunogenetics, pharmacogenetics, and behavioral genetics. Applications of genetic principles to the establishment and maintenance of inbred stocks of laboratory animals.

748 Laboratory Animal Seminar Fall or spring term. No credit. C. I. Boyer, Jr. and staff. Required of all students in Laboratory Animal Medicine. Special topics in Laboratory Animal Medicine and related disciplines.

749 Laboratory Animal Clinical Rotation Fall or spring terms. Credit four hours. Limited to graduate students in Laboratory Animal Medicine. Hours to be arranged.

To gain clinical experience in the management and care of various laboratory animal species as well as the professional operation of a large animal facility, students are rotated through various areas including the experimental surgery laboratory, animal diagnostic laboratory, and the animal facility.

788 Seminar in Surgical Pathology Fall or spring term. Credit one hour. Veterinary elective for third- and fourth-year veterinary students, graduate students, interns, and residents. Lecture/seminar Th 8. R. M. Lewis and staff.

The major objective of this course is to introduce the student to the gross and microscopic features of surgical pathology. Selected material from the Surgical Pathology Service is prepared in advance for independent review by the students. This material is presented in a slide seminar format by the students under the review of the faculty. Emphasis is placed on pathogenesis, etiology, and pathologic descriptions of the lesions. In addition, appropriate guest lectures are presented to cover specific areas of interest and special topics not encountered in the departmental service programs.

789 Seminar in Necropsy Pathology Fall or spring term. Credit one hour. Veterinary elective for third- and fourth-year veterinary students, graduate students, interns, and residents. Lecture/seminar W 8. J. King.

The major objective of this course is to introduce the student to the gross and microscopic features of necropsy pathology. Selected material from the Necropsy Service is prepared in advance for independent

review by the students. This material is presented in a slide seminar format by the students under the review of the faculty. Emphasis is placed on pathogenesis, etiology, and pathologic description of the lesions. In addition, appropriate guest lectures are presented to cover specific areas of interest and special topics not encountered in the departmental service programs.

790 Special Topics in Pathology Fall or spring term. Credit one hour. Veterinary elective for third- and fourth-year veterinary students, graduate students, interns, and residents. Lecture/seminar F 9. R. M. Lewis and staff.

The major objective of this course is to introduce the student to the gross and microscopic features of special topics in pathology, including neuropathology, ocular pathology, reproductive pathology, and the pathology of laboratory animals, avian and marine species. Selected material from the Surgical and Necropsy Services is prepared in advance for independent review by the students. This material is presented in a slide seminar format by the students under the review of the faculty. Emphasis is placed on pathogenesis, etiology, and pathologic description of the lesions. In addition, appropriate guest lectures are presented to cover specific areas of interest and special topics not encountered in the departmental service programs.

Microbiology

Professors J. H. Gillespie, chairman; M. Appel, L. E. Carmichael, R. F. Kahrs, K. M. Lee, D. D. McGregor, B. E. Sheffy; Professor Emeritus D. W. Bruner; Associate Professors S. G. Campbell, G. Lust, R. D. Schultz, F. W. Scott, J. F. Timoney; Senior Research Associate C. G. Fabricant; Research Associates H. Griesen, D. F. Holmes; Adjunct Professors D. Axelrod, J. J. Callis, A. Dardiri, W. Hess, C. J. Sindermann; Adjunct Associate Professor H. A. Poston; Joint Appointees: Professors C. Boyer, L. Coggins, R. Cypess, J. Fabricant, N. L. Norcross, F. Noronha, G. C. Poppensiek, A. J. Winter; Associate Professor L. Leibovitz; Assistant Professor V. Utermohlen; Postdoctoral Fellows R. G. Bell, R. Jungi, U. Yarkoni; Graduate Assistants A. Al-Bana, K. Ashfaq, C. Chen, J. Desiderio, R. Flores-Castro, B. Gametchu, B. Hartland, Y. Hoshino, H. Kinyia, G. Letchworth, E. Lovisa, K. Majiyagbe, T. Manning, D. Miller, W. Shek, R. Swanson, S. Tsai, M. Tung, M. A. Wickes

Courses 515, 516, 517, 518, 519, and 520 are required in the core curriculum of the College of Veterinary Medicine and are given particularly for veterinary students. Students of other colleges must have permission to register in any of these courses. The other courses are not a part of the regular veterinary curriculum. They are available to graduate, veterinary, and undergraduate students who have obtained the proper prerequisite training. Permission to register must be obtained.

315 Basic Immunology Lectures Fall term. Credit two hours. Prerequisite: a course in basic microbiology or special permission of the instructor. T Th 9:05. 204 Stocking Hall. A. J. Winter.

Course material covers at an elementary level the spectrum of facts and concepts in current immunology with special emphasis on the biologic function of the immune response in protective immunity.

316 Basic Immunology Laboratory Fall term. Credit two hours. Prerequisite: a course in basic microbiology or special permission of the instructor. It is suggested that this course be taken in conjunction with Basic Immunology Lectures 315. T Th 1:05. N. L. Norcross.

Designed to illustrate immunological concepts presented in Basic Immunology Lectures 315. Laboratory exercises are selected to familiarize students with basic humoral and cellular immune phenomena and to offer firsthand experience in immunology laboratory techniques.

[317 Pathogenic Microbiology] Spring term. Offered biennially. Will be offered spring, 1979. Credit four hours. Intended primarily for microbiology majors, undergraduate and graduate. Course limited to 48 students. Prerequisites: 290 (290A) General Microbiology Lectures, 291 (290B) General Microbiology Laboratory, and 315 Basic Immunology Lectures. Suggested prerequisite: 316 Basic Immunology Laboratory. Lectures T Th 1:05-1:55. Laboratory 2:05-4:25. J. H. Gillespie and K. M. Lee.

This is a two-part course in medical microbiology covering pathogenic bacteriology and animal virology with particular emphasis on *in vitro* and *in vivo* techniques for isolation and identification of pathogenic microorganisms. Antisera for certain pathogens are produced in laboratory animals and used in serological tests. An important aspect of the course is the pathological and immunological response of various hosts to pathogens of bacterial and viral origin.]

515 Veterinary Immunology Second year, fall term. Credit two hours. Lecture T 1:05. Laboratory: Section I, M 2:05-4:25; Section II W 2:05-4:25. S. G. Campbell.

The objective of the lectures is to give the veterinary student a general outline of the mammalian and avian immune response. Emphasis will be on basic principles using examples from domestic animals, thereby stressing the applications of immunology to veterinary medicine. The laboratories illustrate concepts presented in the lectures and give the student firsthand experience of the production of the immune responses in animals. They also allow the student to carry out the immunological tests commonly used in veterinary medicine or to see the more complex tests presented as demonstrations. Discussion of the immunological aspects of clinical cases is incorporated whenever possible.

516 Veterinary Bacteriology Second year, fall term. Credit two hours. (Courses 516 and 518 are held simultaneously, and the laboratory portion sectioned.) Lecture Th 8:05-8:50. Laboratory: Section I, T F 2:05-4:25; Section II, W 9:05-11:30. Th 2:05-4:25. J. F. Timoney and C. Boyer. Lectures will be organized on a body system and lesion basis. The interaction of pathogenic bacteria with normal flora and normal and acquired host defenses will be stressed together with such aspects

as survival outside the host, transmission, vaccines, and antibiotic sensitivity and resistance. The laboratory will cover cultural, isolation, and identification procedures of the bacteria discussed in lecture as far as possible using real or simulated clinical specimens as sources of the organisms under study.

517 Veterinary Virology Second year, spring term. Credit two hours. Lecture F 9:05. Laboratory M 2:05-4:25. F. W. Scott.

This course will cover viruses that produce important diseases in animals. Topics of interest to the clinician to better understand and control these diseases will be discussed, including the basic properties of the virus, how the virus produces disease, and how the host responds to the virus infection. In the laboratory, emphasis will be on virological and serological procedures important for the diagnosis of various virus diseases.

518 Veterinary Mycology and Protozoology

Second year, fall term. Credit one hour. (Courses 516 and 518 are held simultaneously, and the laboratory portion sectioned.) Lecture Th 8:05-8:50. Laboratory: Section I, T F 2:05-4:25; Section II, W 9:05-11:30. Th 2:05-4:25. J. F. Timoney, C. Boyer, and L. Leibovitz.

The fungi and protozoa pathogenic for domestic animals together with certain saprophytic fungi commonly occurring on the skin of animals, and the protozoa of rumen contents will be studied. Organisms not indigenous to the United States will be covered only at a rather superficial level. Laboratories will cover the cultural and morphological characteristics of these organisms and their demonstration in clinical specimens.

519 Epidemiology and Infectious Diseases

Second year, spring term. Credit four hours. Lecture W Th F 1:05-1:55. Discussion M 10:10-12:35.

R. F. Kahrs, G. C. Poppensiek, D. F. Holmes. A survey of the application of epidemiologic methodology to the investigation of animal and human disease outbreaks; investigation of the cause of new or unknown diseases and the development and evaluation of eradication and control programs. The diagnosis, clinical signs, prevention, and control of animal diseases exotic to the United States and of infectious diseases transmissible between animals and man will be described from an etiologic and epidemiologic viewpoint, with sections on food, waterborne, and occupational diseases.

520 Community Health Fourth year, spring term throughout clinical rotations. Credit two hours. S-U grades. M T 8-8:50. R. F. Kahrs, D. F. Holmes, and collaborators.

This course is a continuation of VM 519 Epidemiology and Infectious Diseases with stress on the application of fundamental concepts of microbiology and immunology to animal disease diagnosis, surveillance, and control including use of vaccines. Emphasis will be on the relationship of the practicing veterinarian to disease control agencies and on the responsibilities of the veterinarian in preventing disease in animal and human populations through practice situation ethics and food hygiene and disease control programs. The role of veterinarian in the maintenance of environmental quality will be discussed.

The course is designed to tie together the basic and applied aspects of diagnostic microbiology, public health, preventive medicine, and regulatory medicine, and to help prepare seniors for the Accreditation Examination, Section II of the National Board Examination (particularly the Hygiene Section) and the Practical Portion of the State Board Examination. It will include a review of breeds of sheep, goats, and swine and health management practices and vaccination schedules for the various species of domestic animals.

Because of clinics and elective blocks permitting student absences from Ithaca, it is understood that all students cannot attend all classes.

605 Special Projects in Microbiology Fall or spring term. Credit and hours to be arranged. S-U grades. Prerequisite: permission of the instructor. Microbiology staff.

The course is designed for undergraduates and as a veterinary elective. Preferably, students should have some background in pathogenic microbiology and immunology.

606 Small Animal Infectious Diseases Spring term. Credit two hours. Prerequisite: three semesters of the veterinary college curriculum or permission of the instructor. F 2:05. F. W. Scott.

An elective course designed to give the future small animal practitioner a greater understanding of the infectious diseases of the dog and cat. Emphasis will be on etiology, pathogenesis, and prevention, including maternal immunity, vaccination, and hospital design as it relates to spread of disease. The course will be coordinated with small animal medicine and microbiology core courses in order to prevent excess repetition. The diseases covered will include the diseases of dogs and cats that are caused by viruses, bacteria, fungi, and protozoa.

607 Virus Diseases of Cattle Fall term. Credit one hour. Elective course for all veterinary students; nonveterinary students need permission of instructor. T 8 or W 8. R. F. Kahrs.

A series of illustrated lectures and discussions on the cause, diagnosis, treatment, prevention, and control of viral diseases of cattle. Emphasis will be placed on recognition of virus diseases and practical procedures for diagnosis. Careful consideration will be given to the usefulness and hazards of control by vaccination.

[608 Advanced Epidemiology] Fall term. Credit two hours. Prerequisite: elective course primarily for third- and fourth-year veterinary students. Prerequisite for all other students: Microbiology 519 and permission of instructor. Will not be offered fall, 1977. T 1:05. Discussion to be arranged. Lectures and discussions on application of the epidemiologic method to the investigation of specific outbreaks, the development and evaluation of disease control programs, and investigation into the cause of unknown diseases. Topics studied in detail will depend on the interests of participants.]

705 Advanced Immunology Lectures Spring term. Offered biennially. Will be offered spring 1978. Credit three hours. Prerequisite: an elementary im-

munology course or permission of the instructors. Lectures: M W F 9. N. L. Norcross, S. G. Campbell, R. D. Schultz, V. L. Utermohlen, A. J. Winter, and invited speakers.

The lectures are designed to cover the field of immunology at an advanced level. Lecture topics include the basic components of immunity, antigens, immunoglobulins, etc.; the dynamics of the immune response, the development and function of the B and T systems, immunosuppression; amplification and effector mechanisms of the immune response, complement, hypersensitivity, and protective immunity.

706 Advanced Immunology Laboratory Spring term. Offered biennially. Will be offered spring 1978. Credit three hours. Prerequisite: permission of the instructors. T Th 1:30. Immunology staff. A series of exercises in modern immunological techniques which include *in vitro* and *in vivo* assays of cellular and humoral immunity.

707 Advanced Work in Bacteriology, Virology, or Immunology Credit and hours to be arranged. Prerequisite: permission of the instructor. S-U grades optional. Microbiology staff.

The course is designed primarily for graduate students with a good background in pathogenic microbiology and immunology. It may be elected by veterinary students who are properly prepared.

[708 Advanced Animal Virology Lectures]

Spring term. Offered biennially. Will be offered spring 1979. Two or three credit hours. Three hours for two lectures and one seminar-discussion section. Two credit hours for lecture portion. Microbiology 316, 517 or equivalent considered highly desirable. General knowledge of biochemistry and animal pathology helpful, but not required. Seminar-discussion section limited to twenty students, with priority given graduate students. S-U grades unless otherwise requested. M W 11:15-12:05. Seminar-Discussion period of two and one-half hours to be arranged. L. E. Carmichael, M. Appel and staff. Principles of animal viral pathogenesis are stressed. Lecture topics include structure and classification of animal viruses, multiplication of RNA and DNA viruses; pathogenesis and host-response to viral infections; biology of selected oncogenic viruses; chronic effects of viral persistence; evolutionary aspects; and systematic treatment of selected viral groups. Course outline available from the secretary for the course.]

[709 Advanced Animal Virology Laboratory]

Spring term. Offered biennially. Will be offered spring 1979. Credit two hours. Prerequisite: permission of instructor. Time to be arranged. M. J. G. Appel, L. E. Carmichael, K. M. Lee, and staff. Discussions and laboratory exercises covering cell culture procedures, concentration and purification of virions, analyses of viral proteins and nucleic acids, virus assays and serology, and cell transformation.]

710 Microbiology and Pathology Seminar Fall and spring terms. No credit. Required of all graduate students in microbiology and pathology. Time to be arranged. J. H. Gillespie and R. R. Minor.

711 Laboratory Methods of Diagnosis Fall and spring terms. Credit one to three hours by arrangement. Prerequisite: permission of instructor. Instructions and practice in the application of bacteriological and serological methods for the diagnosis of disease.

712 Clinical Immunology and Immunopathology Fall term. Course designed for undergraduate professional students, advanced undergraduate students, and graduate students. Credit three hours (two-hour lecture, two-hour laboratory). Prerequisites: Pathology 535 and introductory immunology or permission of the instructors. W 1:05, F 1-4:25. R. D. Schultz and D. O. Slauson. Presentation of current immunologic techniques and immunological concepts applicable to the diagnosis of specific diseases of domestic animals. Special emphasis will be given to the immunologically mediated disorders. Taught on a systems basis.

713 Seminars on Current Topics in Immunology and Microbiology Fall, spring, summer. No credit. Time to be arranged. The major objective is to provide a forum for graduate students to discuss journal articles as well as present research proposals and results. R. D. Schultz and staff.

Avian and Aquatic Animal Medicine

Professors B. W. Calnek, chairman; J. Fabricant, S. B. Hitchner, M. C. Peckham; Associate Professor L. Leibovitz; Assistant Professor J. C. Carlisle; Research Associate B. S. Cowen; Research Specialist J. I. Price; Directors of Laboratory W. F. Dean, G. B. Mitchell; Field Veterinarian T. S. Sandhu; Virologist S. A. Haider

The department maintains a poultry disease diagnostic clinic at the College and two regional diagnostic laboratories in different parts of the state. A diagnostic laboratory for aquatic animal diseases is also located at the College. These laboratories supply fresh material for teaching and research purposes. Adequate facilities existing at the College and the P. Philip Levine Research Laboratories for Avian Diseases provide opportunity for advanced study for properly qualified students. A disease-free breeding flock and a poultry disease isolation building are available for studies of most infectious and other diseases of poultry.

255 Poultry Hygiene and Disease Fall term, alternate (even) years. Credit two hours. Prerequisites: Microbiology 290 or 290A, and permission of the instructor. Minimum enrollment, 5 students; maximum enrollment, 15 students. Lecture and laboratory Th 2:05-4:25. M. C. Peckham.

The nature of the infectious and parasitic diseases of poultry and the principles of hygiene applicable to poultry farming for the prevention and control of diseases.

555 Avian Diseases Second year, spring term. Credit two hours. Required of veterinary students. Lecture and laboratory F 9:05-12:35. S. B. Hitchner. Diseases of domestic poultry and other birds are

studied with special emphasis on differential diagnosis and control. Fresh and preserved specimens from the poultry diagnostic clinic are presented during the laboratory period.

671 Diseases of Aquatic Animals Spring term. Credit two hours. Elective course for all veterinary students and interested students from other colleges. General knowledge of microbiology and parasitology would be helpful, but not required. Lecture and laboratory hours to be arranged. L. Leibovitz. The basic study of this course relates to the etiology, pathology, diagnosis, prevention, and control of diseases of aquatic animals, with special emphasis given to the diseases of fin fish.

770 Advanced Work in Avian Diseases Fall or spring term. By special arrangement with the instructor. Hours to be arranged.

771 Graduate Seminar in Diseases of Aquatic Animals Fall or spring term. Credit one hour. Limited to graduate students of aquatic animal medicine. Seminar Th 3:30-4:30. L. Leibovitz. The objectives of the seminar are to coordinate the resources of the DAAAM and increase communication between student and faculty to optimize graduate study of aquatic animal medicine. Information related to current literature and techniques employed in aquatic animal medicine will be exchanged. Progress reports, problems, and evaluation of each graduate student's project will be discussed. Diagnostic cases of the fish diagnostic laboratory will be presented and reviewed.

772 Advanced Work in Aquatic Animal Diseases Fall or spring term. By special arrangement with the instructor. Hours to be arranged.

Clinical Sciences

Medicine Section: Professors B. C. Tennant (chief), A. deLahunta, F. H. Fox, R. W. Kirk; Associate Professors G. R. Bolton, R. K. Braun, N. B. Haynes; Assistant Professors W. E. Hornbuckle, W. C. Rebhun, R. C. Riis, D. W. Scott, M. C. Smith, G. L. Spaulding; Senior Clinician R. B. Hillman; Instructors R. M. Dyer, D. E. Evans

Surgery Section: Associate Professors E. J. Trotter (chief), R. Dueland, R. E. Hoffer; Assistant Professors R. P. Hackett, Jr., D. M. MacCoy, D. F. Smith, K. K. White

Therigenology Section: Professors K. McEntee (chief), A. J. Winter; Associate Professors C. E. Hall, D. H. Lein; Assistant Professor A. D. McCauley; Senior Research Associate H. O. Dunn

Anesthesiology Section: Professor C. E. Short (chief); Assistant Professor D. Brunson

Clinical Pathology Section: Professors J. Bentinck-Smith (chief), J. B. Tasker

Radiological and Physical Diagnostics: Associate Professor F. A. Kallfelz (chief)

Equine Research: Associate Professors H. F. Schryver (director), H. F. Hintz, J. E. Lowe

Mastitis Research: Professor N. L. Norcross (director); Associate Professor D. S. Postle

Mastitis Control: L. A. Wager (director); W. E. Linquist, supervisor of Ithaca Laboratory

The majority of the lectures and laboratory courses provided by the Department of Clinical Sciences are taught during the third year of the veterinary curriculum. The practical application of the students' basic knowledge in veterinary medicine to clinical diagnosis and therapy of diseases is emphasized at this time. The fourth year is devoted to intensive training in clinical medicine and surgery. Students are assigned responsibility for patient diagnosis and care under the close supervision of the clinical faculty. The curriculum consists mostly of an assignment to clinical services throughout the teaching hospital. During the first semester of the fourth year, students rotate for short periods through all of the clinical and diagnostic services of the hospital. In the second semester, students elect specific clinical services to serve on for four-week periods.

The teaching hospital is equipped with modern surgical and diagnostic services, including sophisticated radiologic facilities and diagnostic capabilities involving nuclear medicine. The clinical pathology laboratory is equipped with an automated analyzer for blood and other body fluids.

The teaching hospital consists of three clinics. The Small and Large Animal Clinics are both hospitals with complete facilities for intensive patient care. These clinics receive both out-patients and patients that are hospitalized. Patients come directly from local clientele or are referred to the teaching hospital from veterinary practitioners in New York State and the surrounding states of New England, New Jersey, and Pennsylvania. Students are assigned to the patients in the hospital where their activities are closely supervised by the clinical faculty. Students participate in the selection and evaluation of diagnostic and therapeutic procedures and assist in surgery. Although the final decision on all diagnostic and therapeutic procedures is made by the head of each service, active student participation is encouraged and essential for optimum patient care and student education.

Proximity to an urban community and an agricultural college and well-stocked farming community offer the necessary variety of patients for study.

The Ambulatory Clinic provides veterinary service on the premises of the patient under conditions identical with those encountered in private large animal practice. Students perform physical examinations and treatment under the supervision of a clinical faculty member. The farming community adjacent to the veterinary college is largely devoted to dairy farming, providing ample material related to obstetrics and diseases of dairy cows. In addition, the New York State Mastitis Control Program maintains a central field laboratory at the College. Fourth-year students accompany and assist veterinarians in field trips that deal with all phases of bovine mastitis and related dairy management procedures.

Courses

475 Health and Diseases of Animals Spring term. Credit three hours. Not open to first-year stu-

dents or to those who have had no course in animal husbandry. Lectures M W F 11:15. C. E. Hall and guest lecturers from veterinary college faculty. Diseases of domestic animals, chiefly those related to food and fiber production, are discussed with specific examples and models. Causes, prevention and control, and importance to human health are emphasized.

560 Clinical Methods Second year, fall term. Credit two hours. Lecture W 1:05. Laboratory W or F 2:05-4:25. R. P. Hackett, Jr. and faculty of sections of surgery and medicine. Staff members from both the Large Animal Clinic and the Small Animal Clinic present material dealing with restraint methods and clinical techniques used in physical examinations for diagnosis and therapeutics. The laboratories will utilize practical demonstrations and student participation in the examination of the normal animal and selected clinical cases of the diseased animal.

561 Obstetrics and Reproductive Diseases Second year, spring term. Credit three hours. Lectures T 8, W 10:10. Laboratory W or Th 2:05-4:25. D. H. Lein, A. D. McCauley. A presentation of applied physiology and endocrinology of the male and female reproductive tract; congenital, infectious, endocrine, and miscellaneous diseases of the genital organs causing infertility and sterility; and artificial insemination.

562 Obstetrics and Reproductive Diseases Third year, fall term. Credit three hours. Lectures T Th 10:10. Laboratory W or Th 2:05-4:25. D. H. Lein, A. D. McCauley. Pregnancy diagnosis, diseases of the gestation period including teratology and abortion, parturition, dystocia, obstetrical operations, and postpartum diseases are presented.

563 Large Animal Medicine Third year, fall term. Credit four hours. T W Th F 9:05. F. H. Fox.

564 Large Animal Medicine Third year, spring term. Credit four hours. M T W Th 9:05. F. H. Fox, R. K. Braun, R. B. Hillman, A. D. McCauley, M. C. Smith. Lectures or recitations covering physical diagnosis, therapeutics, and some diseases of large animals. In addition to the instruction provided by the departmental staff, M. C. Smith gives lectures concerning poisonous plants.

565 Large Animal Surgery Third year, spring term. Credit four hours. Lectures M T 10:10, Th 8. Laboratory M T W F 2:05-4:25. K. K. White, R. P. Hackett, Jr., D. F. Smith. Lectures cover specific surgical conditions and techniques in the large animal species as well as an introduction to commonly encountered lameness problems. Laboratories allow students to become acquainted with induction and maintenance of anesthesia in large animal species. Common surgical procedures utilizing ponies and cows are performed emphasizing technique, regional anatomy, and aftercare.

566 Radiology Third year, spring term. Credit two hours. M 9, F 10:10. V. T. Rendano, Jr., C. B. Quick, G. D. Ryan.

38 Clinical Sciences

Fundamentals of radiographic diagnosis, radiation therapy, and radiation safety.

567 Clinical Nutrition Third year, spring term. Credit two hours. Required of veterinary students. T 11:15, Th 1:05. F. A. Kallfelz.

Lectures and demonstrations reviewing basic principles of nutrition and covering nutritional and metabolic disease problems of domestic animals. The use of nutritional principles in the prevention, treatment, and management of diseases of domestic animals is stressed. Case material from the teaching hospital is used whenever appropriate.

568 Veterinary Medical Orientation First year, fall term. Credit two hours. T Th 8. A. deLahunta, C. E. Hall, and guest lecturers from veterinary college faculty.

This course exposes students to the areas of clinical medicine that relate to the material studied in the gross and developmental anatomy courses. Examples include regional radiographic diagnoses and surgery; cardiac examination, including auscultation; ophthalmic examination, including the use of the ophthalmoscope; and the physical examination and restraint of small animals. Lectures on the principles of veterinary medical ethics, veterinary medical organizations, and various topics related to veterinary practice management will also be given.

569 Veterinary Medical Orientation First year, spring term. Credit one hour. M 8. W. C. Rebhun. This course exposes the students to clinical large animal medicine as it relates to material simultaneously studied in the basic sciences of anatomy, histology, physiology. Physical examination of large animals, basic restraint of large animals, and regional anatomy of specific clinical entities are discussed. Examples of histology versus histopathology are used to illustrate some discussion.

571 Clinical Pathology Third year, fall term. Credit two hours. Prerequisites or corequisite: Pathology 535 and 536. Students from other colleges may be admitted by special permission without these prerequisites. Lectures M 9:05, F 10:10. Laboratory T 2:05-4:25 or W 10:10-12:35. Laboratory omitted when Friday lecture is given. J. Bentinck-Smith, J. B. Tasker.

This course is concerned with the application of the techniques of hematology, urinalysis, cytology, semen examinations, and other laboratory procedures in diagnosis; the biochemical changes in the blood and other fluids in disease; and the study of pathological alterations in clinical cases.

572 Senior Seminar Fourth year, fall and spring terms. F 7:45. D. W. Scott, chairman.

Fourth-year students are required to attend these conferences. First-, second-, and third-year students and all staff members are also invited to attend.

The aim of this course is to give the student the responsibility and opportunity of selecting and studying a disease entity based on a case or series of cases, or to give the student the responsibility and opportunity of conducting a short-term, clinically-oriented research project under the direction of a faculty member. In

either case, an oral report will be presented at a Friday seminar. A written report also will be submitted after the seminar. All participants are encouraged to foster an atmosphere in which discussion, exchange of ideas, and the airing of controversial opinions might flourish.

579 General Medicine Second year, spring term. Credit two hours. B. C. Tennant and faculty of section of medicine.

An introduction to veterinary internal medicine with emphasis given to the comparative aspects of disease and to the pathophysiologic basis of the cardinal clinical manifestations of organ system dysfunction.

581 Nutrition First year, fall term. Credit two hours. Lecture Th 9:05-9:55. Laboratory W 2:05-4:25. H. F. Hintz.

Function of nutrients, sources of nutrients, and identification and evaluation of feedstuffs and feeding programs for livestock and companion animals will be discussed.

583 Small Animal Medicine and Surgery Third year, fall term. Credit three hours. Prerequisites: Pathology 536, Clinical Pathology 571, Pharmacology 528. T Th F 11:15. R. W. Kirk and faculty of the sections of medicine, surgery, and anesthesiology. Comprehensive course in medical and surgical diseases of small animals arranged and presented by systems.

584 Small Animal Medicine and Surgery. Third year, spring term. Credit eight hours. Hours to be arranged. R. W. Kirk and faculty of the sections of medicine, surgery and anesthesiology. Continuation of Course 583.

586 Small Animal Surgical Exercises Third year, spring term. Credit one hour. M T W or Th 2:05-4:25. R. E. Hoffer and faculty of the sections of surgery and anesthesiology.

587 General Surgery Third year, fall term. Credit three hours. Prerequisite: Pathology 536. M T Th 8. R. Dueland and faculty of the sections of surgery and anesthesiology.

675 Special Problems in Large Animal Medicine Fall or spring term. By permission of the instructor only. Hours to be arranged.

676 Special Problems in Large Animal Surgery Fall or spring term. By permission of the instructor only. Hours to be arranged.

677 Special Problems in Large Animal Obstetrics Fall or spring term. By permission of the instructor only. Hours to be arranged.

679 Dairy Herd Health Fall term. Credit one hour. Elective course for third- and fourth-year veterinary students. W 7. R. K. Braun. The objective of this course is to teach veterinary students who are interested in dairy-oriented practice the common causes of cattle disease and measures required to prevent these diseases.

680 Poisonous Plants Fall term. Credit one hour. Elective course for all veterinary students. W 8. R. B. Hillman, M. C. Smith.

Lectures and field trips will be utilized to establish identification of toxic plants and to acquaint students with criteria for establishing a diagnosis of plant poisoning and instituting rational therapy.

681 Horse Health Management Spring term. Credit one hour. W 8. R. B. Hillman. Offered as an elective course to third- and fourth-year veterinary students with special interest in horses. Prevention of horse diseases from foaling through adulthood by management practices, nutrition, and vaccination procedures will be emphasized.

682 Large Animal Internal Medicine Fall term. Credit two hours. Elective course for third- and fourth-year veterinary students. B. C. Tennant. W 8. Selected topics of large animal internal medicine using lectures and case presentation. Emphasis will be given to the major diseases of the cardiovascular, respiratory, and gastrointestinal systems.

[683 Veterinary Practice Management Spring term. (Not offered 1978.) Credit one hour. Elective course for fourth-year veterinary students. N. B. Haynes. The objective is to familiarize students with the non-medical aspects of veterinary practice. Topics to be covered include client relations, personnel management, credit management, record keeping, and accounting. The veterinarian's legal responsibilities under statutes relating to disease control and drug abuse will be discussed as well as an employer's legal obligation to state and federal agencies concerned with taxes.]

684 Horse Lameness Spring term. Credit one hour. Offered to third-year veterinary students. W 11:15. J. E. Lowe. This course is designated to acquaint third-year students with the principles of lameness diagnosis. Physical examination for soundness of the musculo-skeletal system is stressed through lecture demonstration and assigned case material from the Large Animal Hospital and Equine Research Park. Motion pictures and television tapes are used each week to illustrate principles of diagnosis and specific types of lameness.

686 Goats: Management and Diseases Spring term. Credit one hour. Elective course for second-, third-, and fourth-year veterinary students. W 7. M. C. Smith. Common nutritional, reproductive, medical, and surgical problems of goats will be emphasized.

688 Special Problems in Small Animal Medicine Fall or spring term. By permission of instructor only. Hours to be arranged.

689 Special Problems in Small Animal Surgery Fall or spring term. By permission of instructor only. Hours to be arranged.

778 Gastroenterology Conference Fall and spring terms. Credit one hour. Th 1:05. B. C. Tennant.

779 Veterinary Gastroenterology Spring term. Credit two hours. W 8-9; F 2-3. B. C. Tennant and others.

Pathogenesis, diagnosis, and treatment of the major medical diseases of the gastrointestinal tract of domestic animals.

780 Veterinary Research Methods Spring term. An elective and graduate course. Credit two hours. Hours to be arranged. H. O. Dunn. Elementary to advanced statistical methods, including sampling, statistical inferences, and publication procedures.

781 Advanced Work Fall and spring terms. Five or more hours a week throughout the term. Hours to be arranged. By permission of instructor only. Research in medicine and surgery of small animals.

Reproductive Pathology K. McEntee. See **Pathology 740** p. 32.

Clinical Service Courses

Fall term—required rotation. Fourth-year students work in groups of 4 to 5 for three-week periods on the various services in the following clinical areas.

573 Large Animal Clinic Credit three hours. 2 surgical and 1 medical service. K. K. White.

575 Ambulatory Clinic Credit three hours. One-week periods on 2 ambulatory services and 1 mastitis service. B. C. Tennant.

577 Diagnostic Services Credit three hours. Clinical Pathology, Pathology, Radiology. J. Bentinck-Smith.

589 Small Animal Medical Clinic Credit three hours. 2 medical services, 1 ophthalmology—dermatology service. B. C. Tennant.

591 Small Animal Surgical Clinic Credit three hours. 2 surgical services, 1 anesthesiology service. E. J. Trotter.

Spring term—elective blocks. Fourth-year students may select from the following courses. Each course consists of a two- or four-week period of intensive study in that subject. The term is divided into five periods of four weeks duration. Each student must select courses for four of these time periods. A course may also be selected for the fifth period or it may be used as a free period. Only in special circumstances may a course be repeated.

540 Clinical Pathology—Radiology Clinic Credit two hours. J. Bentinck-Smith, V. T. Rendano.

541 Necropsy Clinic Credit two hours. R. Lewis.

574 Large Animal Surgical Clinic Credit four hours. E. J. Trotter.

576 Ambulatory Clinic Credit four hours. B. C. Tennant.

- 578 Anesthesiology Clinic** Credit two hours.
C. E. Short.
- 580 Radiology Clinic** Credit two hours. V. T. Rendano.
- 590 Small Animal Medical Clinic** Credit four hours. B. C. Tennant.
- 592 Small Animal Surgical Clinic** Credit four hours. E. J. Trotter.
- 593 Ophthalmology Clinic** Credit two hours. R. C. Riis.
- 594 Large Animal Medical Clinic** Credit four hours. B. C. Tennant.
- 595 Rotating Clinic** Credit sixteen hours. A. deLahunta.
- 596 Opportunities in Veterinary Medicine** Credit four hours. Curriculum Committee.
- 598 Dermatology Clinic** Credit two hours. D. W. Scott.
- 599 Ophthalmology—Dermatology Clinic** Credit two hours. R. C. Riis, D. W. Scott.

Diagnostic Laboratory

Professor R. H. Cypess, director; Associate Professors D. Kradel (assistant director), G. A. Maylin (head, Division of Toxicology); Assistant Professors L. T. Glickman (head, Division of Epidemiology), R. H. Jacobson, J. D. Henion; Research Associates S. J. Shin, J. Post, D. W. Webert; Research Assistants E. A. Dewey and J. Fairbrother.

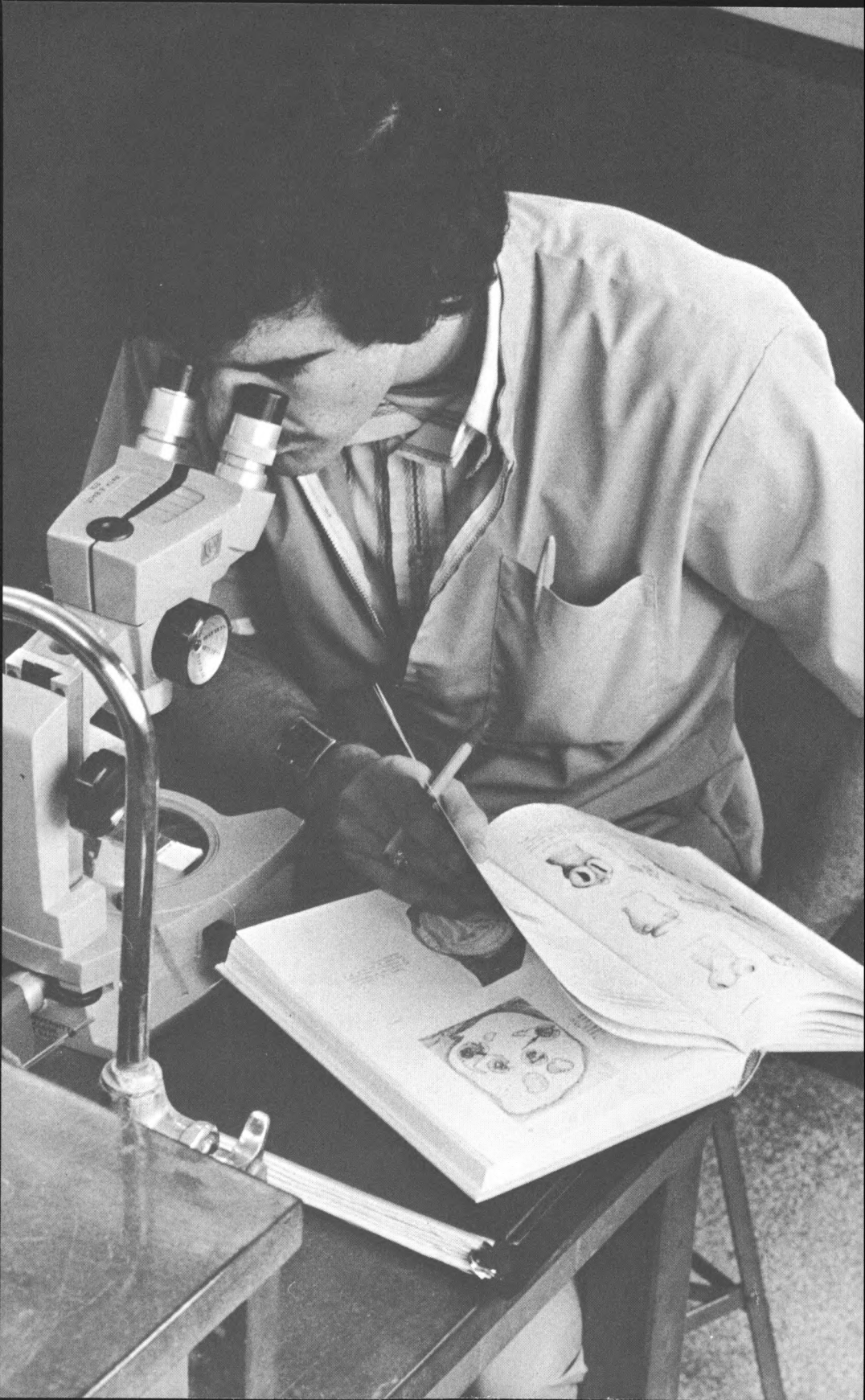
The Diagnostic Laboratory consists of three divisions: Epidemiology, Toxicology, and Acute and Chronic Diseases. The mission of the Diagnostic Laboratory is the prevention and control of the diseases of animals with particular emphasis on diseases of food and fiber

species and the zoonoses. The Diagnostic Laboratory serves as a resource center whose concerns are diagnostic service for the veterinary profession and animal industry, epidemic investigation, development and evaluation of new diagnostic tests, preventive medicine, and continuing education functions. Its faculty participate collaboratively in the teaching, service, and research activities in the various departments throughout the College.

The Diagnostic Laboratory maintains laboratories of virology, bacteriology, parasitology, immunology, epidemiology, immunopathology, and toxicology. Last year over 50,000 specimens were received from all parts of New York State for a wide range of diagnostic procedures and tests, in addition to the drug testing described below. This volume is expected to increase as the enlarged program becomes effective.

The toxicology section of the Diagnostic Laboratory is involved in various aspects of clinical and environmental toxicology. In addition it operates the Equine Drug Testing and Research Program, which assists the racing industry and certain other equine activities in the control of the use of drugs that might influence the performance of horses. A broadly based research program studies the metabolism and pharmacodynamics of drugs, and develops methods for detecting them and their metabolites in blood and other body fluids. Analytical methods employ gas chromatography, mass spectrography, x-ray fluorescence, computer analysis, and other sophisticated technology to achieve detection of drugs at very low levels of concentration. Satellite testing laboratories are established at the harness tracks in the state where all racing animals are examined by a prerace blood test and over 60,000 tests were done last year. An additional 15,000 tests a year are done at the College on thoroughbreds.

738 Laboratory Methods of Diagnosis Fall or spring term. Credit one to three hours by arrangement. For advanced undergraduate and graduate students. Prerequisites: Pathology 536 and Microbiology 515 or 315. Instruction and practice in the application of immunological, biochemical, microbiological, and pathological methods for the diagnosis of disease.





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Bureau of Biological Research
Rutgers University
New Brunswick, New Jersey 08903

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Philadelphia, Pennsylvania 19104

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Gerald P. Murphy, M.D., D.Sc.
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666 Elm Street
Buffalo, New York 14263

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New England Medical Center Hospital
171 Harrison Avenue
Boston, Massachusetts 02109

William F. Stack, D.V.M.
Limestone Plaza
Fayetteville, New York 13066

Bruce Widger, D.V.M.
11 Flower Lane
Marcellus, New York 13108

Leo A. Wuori, D.V.M.
442 N. Tripphammer Road
Ithaca, New York 14850

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 of Dogs
 Short, Charles E., D.V.M., M.S., Anesthesiology
 Sindermann, Carl J., B.S., A.M., Ph.D., Adjunct,
 Veterinary Microbiology
 Stevens, Charles E., B.S., D.V.M., M.S., Ph.D.,
 Veterinary Physiology; Chairman of the Department
 of Physiology, Biochemistry, and Pharmacology
 Tapper, Daniel N., B.S., V.M.D., Ph.D., Physical
 Biology; Acting Chairman of the Department of
 Physical Biology
 Tasker, John B., D.V.M., Ph.D., Clinical Pathology
 Tennant, Bud C., B.S., D.V.M., Comparative
 Gastroenterology
 Wasserman, Robert H., B.S., M.S., Ph.D., Radiation
 Biology
 Whitlock, John H., D.V.M., M.S., Parasitology
 Winter, Alexander J., B.S., D.V.M., M.S., Ph.D.,
 Veterinary Microbiology
 Wolf, Kenneth E., B.S., M.S., Ph.D., Adjunct,
 Veterinary Pathology
 Wootton, John F., B.S., M.S., Ph.D., Physiological
 Chemistry

Associate Professors

Arion, William J., B.S., M.S., Ph.D., Physiological
 Chemistry
 Bolton, Gary R., D.V.M., Small Animal Medicine—
 Cardiology
 Braun, R. Kenneth, B.S., D.V.M., M.S., Veterinary
 Medicine
 Campbell, S. Gordon, B.V.M.S., M.R.C.V.S., M.V.Sc.,
 Ph.D., Veterinary Microbiology
 Casarett, Alison P., B.S., M.S., Ph.D., Radiation
 Biology; Associate Dean of the Graduate School
 Cummings, John F., B.S., D.V.M., M.S., Ph.D.,
 Veterinary Anatomy; Graduate Faculty
 Representative
 Dueland, Rudolf, D.V.M., M.S., Veterinary Surgery
 Hall, Charles E., A.B., D.V.M., Reproductive Studies
 Haynes, N. Bruce, B.S., D.V.M., Veterinary Science;
 Extension Veterinarian and Director of Continuing
 Education (Sabbatic)
 Hintz, Harold F., B.S., M.S., Ph.D., Animal Nutrition
 Hoffer, Richard E., D.V.M., M.S., D.A.C.V.S., Small
 Animal Surgery

Kallfelz, Francis A., D.V.M., Ph.D., Mark L. Morris
Professorship in Clinical Nutrition; Physical Biology
(Sabbatic)

King, John M., D.V.M., Ph.D., Veterinary Pathology

Kradel, David C., B.S., D.V.M., M.S., M.P.H.,
Veterinary Epidemiology and Assistant Director of
the Diagnostic Laboratory

Leibovitz, Louis, B.A., B.S., V.M.D., Avian and Aquatic
Animal Medicine

Lein, Donald H., D.V.M., Ph.D., Theriogenology

Lowe, John E., D.V.M., M.S., Veterinary Surgery;
Coordinating Manager of Equine Research Park
(Sabbatic until February)

Lust, George, B.S., Ph.D., Biochemistry

Maylin, George A., D.V.M., M.S., Ph.D., Toxicology

Minor, Ronald R., V.M.D., Ph.D., Veterinary Pathology

Postle, Donald S., D.V.M., M.S., Veterinary Science

Poston, Hugh A., B.S., M.S., Ph.D., Adjunct, Micro-
biology

Schryver, Herbert F., B.A., D.V.M., Ph.D., Pathology;
Director of Equine Research Program

Schultz, Ronald D., B.S., M.S., Ph.D., Veterinary
Immunology

Schwark, Wayne S., D.V.M., M.Sc., Ph.D., Veterinary
Pharmacology

Scott, Fredric W., B.S., D.V.M., Ph.D., Veterinary
Microbiology; Director of Cornell Feline Research
Laboratory

Slauson, David O., D.V.M., Ph.D., Immunopathology

Thompson, John C., Jr., B.S., M.S., Ph.D., Environ-
mental Radiation Biology

Timoney, John F., B.Sc., M.V.B., M.R.C.V.S., M.S.,
Ph.D., Veterinary Bacteriology

Trotter, Eric J., B.S., D.V.M., M.S., Anesthesiology

Assistant Professors

Brunson, David B., B.S., M.S., D.V.M., Anesthesiology

Carlisle, James C., D.V.M., Veterinary Pathology

Cockerell, Gary L., B.S., D.V.M., Ph.D., Immuno-
pathology

Glickman, Lawrence T., B.A., M.A., V.M.D., M.P.H.,
Dr. P.H., Veterinary Epidemiology

Hackett, Richard P., D.V.M., M.S., Surgery

Henion, John D., B.A., M.S., Ph.D., Toxicology

Hornbuckle, William E., B.S., D.V.M., Small Animal
Medicine

Houpt, Katherine A., B.S., V.M.D., Ph.D., Veterinary
Physiology

Jacobson, Richard H., B.A., M.S., Ph.D., Immuno-
parasitology

Lesser, George V., B.S., D.D.S., Adjunct, Veterinary
Pathology

MacCoy, Douglas M., B.S., D.V.M., Small Animal
Medicine

McCauley, Alan D., B.S., D.V.M., Theriogenology

Quick, Charles B., B.S., D.V.M., M.S., Clinical
Radiology

Rebhun, William C., B.S., D.V.M., Internal Medicine
and Ophthalmology

Rendano, Victor, V.M.D., Radiology

Riis, Ronald C., B.S., M.T., D.V.M., M.S., Clinical
Ophthalmology

Scott, Danny W., B.S., D.V.M., Small Animal Medicine

Smith, Donald F., D.V.M., Surgery

Smith, Mary C., B.S., D.V.M., Medicine

Spaulding, Glen L., D.V.M., Cardiology

Utermohlen-Lovelace, Virginia, A.B., M.D.,
Immunology

White, Karl K., B.S., D.V.M., Surgery

Instructors and Lecturers

Ballas, L. M., B.S., M.S., Ph.D., Physiology, Bio-
chemistry, and Pharmacology

Dyer, Robert M., B.A., V.M.D., Clinical Sciences

Evans, Douglas E., D.V.M., Clinical Sciences

Kingsbury, John M., B.S., A.M., Ph.D., Professor of
Phytotoxicology, College of Agriculture and Life
Sciences

Oku, T., B.S., M.S., Ph.D., Health Science Degree,
Visiting, Physical Biology

Staff

Research Associates and Specialists

Armbrecht, Harvey J., B.S., Ph.D., Physical Biology

Baggs, Raymond B., B.A., B.S., D.V.M., Ph.D.,
Laboratory Animal Medicine; Veterinary Pathology

Britten, Allan M., D.V.M., Field Veterinarian
(Kingston)

Corradino, Robert A., B.S., M.S., Ph.D., Physical
Biology

Cowen, Barrett S., B.S., M.S., Ph.D., Avian and
Aquatic Animal Medicine

Dean, William F., B.S.A., M.S., Ph.D., Duck Research
Laboratory (Eastport)

Drost, Cornelis J., B.S.E.E., M.E.E., Physiology, Bio-
chemistry, and Pharmacology

Dunn, Henry O., B.S., M.S., Ph.D., Clinical Sciences

Ebel, Joseph G., Ph.D., Equine Drug Testing
(Buffalo/Batavia)

Eisenstadter, Joseph, Ph.D., Equine Drug Testing
(Westbury/Yonkers)

Fabricant, Catherine G., B.S., M.S., Veterinary Micro-
biology

Fullmer, Curtis S., B.S., M.S., Ph.D., Physical Biology

Georgi, Marion E., D.V.M., Veterinary Pathology

Gilbert, Mason D., Ph.D., Equine Drug Testing
(Vernon Downs)

Gilmartin, John E., B.S., Assistant Director of
Laboratory Animal Medicine

Greisen, Helen, B.S., M.S., Ph.D., Veterinary
Microbiology

Haider, S. A., D.V.M., M.S., Ph.D., Avian and Aquatic
Animal Medicine (Eastport)

Hayes, Gerald L., D.V.M., Field Veterinarian
(Earlville)

Heitmann, Richard N., B.S., Ph.D., Physiology, Bio-
chemistry, and Pharmacology

Herschel, Douchka, A., Ph.D., D.V.M., Physiology,
Biochemistry, and Pharmacology

Hillman, Robert B., A.B., D.V.M., M.S., Clinical
Sciences (Sabbatic)

Hiltz, Frederick L., S.B.E.E., S.M.E.E., Ph.D., Physical
Biology

Hiscock, Bruce F., B.S., Ph.D., Equine Drug Testing
(Saratoga Springs)

Holmes, Dorothy F., D.V.M., Ph.D., Veterinary Micro-
biology

Hopkins, Stephen E., Ph.D., Equine Drug Testing
(Monticello)

Kemen, Mathias J., Jr., D.V.M., M.S., Veterinary Pathology
 Koo, Sung I., B.S., M.S., Ph.D., Physical Biology
 Linquist, Wesley, D.V.M., Supervising Veterinarian, Mastitis Program (Ithaca)
 Mitchell, Grayson B., B.S., D.V.M., Director of Laboratory, Avian Disease Program (Kingston)
 Moraff, Howard, A.B., B.S., M.S., Ph.D., Physical Biology
 Post, John E., B.S., D.V.M., Ph.D., Diagnostic Laboratory
 Price, Jessie I., B.S., M.S., Ph.D., Avian and Aquatic Animal Medicine (Eastport)
 Sandhu, Tirath S., B.V.Sc., M.S., Ph.D., Field Veterinarian (Eastport)
 Shin, Sang J., B.S., D.V.M., Diagnostic Laboratory
 Wager, Leslie A., D.V.M., Director and Field Veterinarian, Mastitis Program (Canton)
 Weber, Donald W., D.V.M., M.Med.S., Diagnostic Laboratory
 Wentworth, Richard A., B.S., M.S., Ph.D., Physical Biology
 Whitehead, Roland G., D.V.M., Field Veterinarian (Springville)

Teaching Hospital

Director: A. deLahunta
 Assistant to Director: A. Cheney
 Business Administrator: G. Hohwald
 Pharmacy: L. Rivkin
 Medical Records: E. Vellake
 Animal Care Personnel: C. Ames
 Small Animal Clinic Director: E. J. Trotter
 Large Animal Clinic Director: K. K. White
 Ambulatory Clinic Director: F. H. Fox

Sections

Medicine: B. C. Tennant, Chief (internal medicine, gastroenterology)
Faculty: G. R. Bolton (cardiology, internal medicine), R. K. Braun (internal medicine, obstetrics), A. deLahunta (neurology), R. M. Dyer (internal medicine), D. E. Evans (internal medicine), F. H. Fox (internal medicine, obstetrics), R. B. Hillman (internal medicine, obstetrics), W. E. Hornbuckle (internal medicine), K. A. Hought (animal behavior), F. A. Kallfelz (clinical nutrition, internal medicine), R. W. Kirk (dermatology, internal medicine), W. C. Rebhun (internal medicine, ophthalmology), R. C. Riis (ophthalmology), D. W. Scott (dermatology), M. C. Smith (internal medicine), G. L. Spaulding (internal medicine, cardiology)
Staff: W. Linquist (mastitis control)
Residents: R. DiFrancia, T. J. Kern, W. K. Scarratt

Surgery: E. J. Trotter, Chief (orthopedics)

Faculty: R. T. Dueland (orthopedics), R. P. Hackett, R. E. Hoffer (soft tissue), J. E. Lowe, D. M. MacCoy (soft tissue), D. F. Smith, K. K. White
Residents: D. N. Aron, S. M. Barclay, W. P. Barclay, J. L. Berzon, G. D. Myhre

Anesthesiology: C. E. Short, Chief

Faculty: D. Brunson

Theriogenology: K. McEntee, Chief

Faculty: P. W. Concannon, R. H. Foote, C. E. Hall, W. Hansel, D. H. Lein, A. D. McCauley, A. J. Winter
Staff: H. O. Dunn

Clinical Pathology: J. Bentinck-Smith, Chief

Faculty: J. B. Tasker
Resident: R. M. Shull

Radiological and Physical Diagnostics: F. A. Kallfelz, Chief, (nuclear medicine)

Faculty: E. L. Gasteiger (electrodiagnostics), C. B. Quick (radiology), V. T. Rendano, Jr. (radiology), G. D. Ryan (radiology), T. Stouffer, D. N. Tapper
Resident: G. S. Allan

Pathology: R. M. Lewis, Chief

Interns

Ambulatory Clinic: J. P. Mort

Large Animal Clinic: I. C. Embree, S. B. Levine, A. B. Lindsey

Small Animal Clinic: K. H. Haupt, D. C. Huse, L. A. Kaddatz, W. A. Lundberg, M. T. Newcomb

Library

Reinap, Mia, B.S., B.S.L.S., Librarian of the Flower Veterinary Library
 Miller, Pearl S., B.S., M.Ed., M.L.S., Associate Librarian
 Whitaker, Susanne K., A.B., M.L.S., Senior Assistant Librarian

Specialists and Technicians

Ames, Claude K., Livestock Superintendent
 Batik, George J., Medical Illustrator
 Conklin, Marshall E., Farrier
 Hamilton, William P., Medical Illustrator
 Johnson, Richard C., Assistant Pharmacist
 Lauber, John, Visual Aids Technologist
 Reidemanis, Alfreds, Research Technician
 Rivkin, Lawrence S., Pharmacist
 Ryan, Gerald D., X-ray Lecturer
 Smith, Robert F., Director, Biomedical Communications

Standing Committees of the College Faculty

General Committee (Elective)

B. C. Tennant (1976-79), chairman
 A. Dobson (1975-78)
 F. A. Kallfelz (1975-78), (Sabbatic—1977-78)
 J. B. Tasker (1976-79)
 S. B. Hitchner (1977-80)

Admissions Committee

M. J. Appel
A. L. Aronson
J. Bentinck-Smith
D. F. Holmes
R. W. Kirk
V. T. Rendano
D. O. Slauson

Committee on Curriculum* (Elected by department members)

R. E. Hoffer, chairman
W. J. Arion
J. Fabricant
R. P. Hackett
C. E. Hall
T. R. Houpt
R. N. Minor
C. G. Rickard, ex officio
W. O. Sack
D. W. Scott
D. N. Tapper
J. F. Timoney

* Student representatives are elected from each class.

Subcommittee (Class Schedule)

J. Fabricant, chairman
C. G. Rickard

Committee on College Library

J. Fabricant, chairman
J. R. Georgi
W. O. Sack
M. C. Smith

Committee on Deficient Students

J. Bentinck-Smith, chairman
T. Dueland
S. B. Hitchner
R. Riis

Committee on Student Conduct

S. G. Campbell, chairman
W. J. Arion
G. L. Cockerell
G. Lust
K. K. White

Class Advisory Committees

Class of 1981

Not yet chosen

Class of 1980

J. Bentinck-Smith
F. H. Fox
S. B. Hitchner
R. F. Kahrs
F. A. Kallfelz

R. M. Lewis
R. N. Minor
C. G. Poppensiek
K. K. White

Class of 1979

E. N. Bergman
S. G. Campbell
A. deLahunta
R. Dueland
J. R. Georgi
N. B. Haynes
K. A. Houpt
T. R. Houpt
E. C. Melby, Jr.
R. C. Riis
W. O. Sack
A. F. Sellers
M. C. Smith
D. N. Tapper

Class of 1978

H. E. Evans
R. E. Habel
C. E. Hall
R. B. Hillman
R. E. Hoffer
W. S. Schwark
D. W. Scott

Committee on Scholarships

J. C. Thompson, Jr., chairman
B. S. Cowen
R. W. Kirk
M. C. Peckham
D. S. Postle, ex officio
R. H. Wasserman
A. J. Winter

Faculty Council of Representatives (Elective)

J. Bentinck-Smith (1975-78)
R. E. Habel (1978-80)
N. L. Norcross (1975-78)
W. O. Sack (1977-79)

SUNY Senate

J. F. Timoney, senator

Special Committees 1977-78

Clinical Pathological Conference

R. N. Minor, chairman
J. M. King
R. D. Schultz
J. B. Tasker

Seventieth Annual Conference for Veterinarians

January 17, 18, and 19, 1978

J. B. Tasker, chairman
G. L. Cockerell
F. H. Fox
N. B. Haynes
R. B. Hillman
V. T. Rendano
R. D. Schultz
D. W. Scott
C. E. Short
E. J. Trotter

Senior Seminar Committee

D. W. Scott, chairman
R. Dueland
L. T. Glickman
R. B. Hillman
W. C. Rebhun
C. E. Short

Committee on Equine Research Program

R. H. Wasserman, chairman
R. H. Cypess
J. R. Georgi
R. Hackett
W. O. Sack

Biohazard Safety Commission

J. C. Thompson, Jr., chairman
W. J. Arion
C. I. Boyer, Jr.
G. L. Cockerell
R. A. Corradino

College-State Society Liaison Committee

D. G. Dedrick
R. Dueland
N. B. Haynes, chief faculty representative
D. L. Jenkins
J. E. Lowe
F. O. Wright

Pharmacy and Therapeutics Committee

A. L. Aronson, chairman
R. W. Kirk
D. M. MacCoy
L. S. Rivkin, ex officio
W. S. Schwark
D. W. Scott

Committee on Laboratory Animal Medicine

F. W. Scott, chairman
R. B. Baggs

C. I. Boyer, Jr., ex officio
R. H. Cypess
H. E. Evans
J. E. Gilmartin, ex officio
S. B. Hitchner
R. E. Hoffer
F. W. Lengemann
J. E. Lowe
D. D. McGregor
R. D. Schultz

Student/Faculty Liaison Committee (Elective)*

* Student representatives and faculty members are elected by the student body in the fall. One student serves as chairperson. Membership list will be circulated at that time.

Graduate/Faculty Liaison Committee (Elective)*

L. E. Carmichael
J. F. Cummings
I. G. Mayhew
D. D. Miller
J. Smith
B. C. Tennant
A. J. Winter

* Graduate students select the committee.

Note: A short summary report of the special committees should be given to the secretary of the College in April for transmittal to the faculty at the time of the faculty meeting in May.

Cornell Chapter of S.C.A.V.M.A., 1977-78

President: Joanne Bicknese, Class of 1978
Vice President: Mary Wilkes, Class of 1978
Secretary: Christine Johnston, Class of 1980
Treasurer: Karen Lafky, Class of 1978
President-Elect: Marshall Breite
Faculty Advisors: Dr. Gary Bolton and Dr. Robert Kahrs

Graduate Students Association

The association of graduate students at the College of Veterinary Medicine is an organization designed to provide a change of pace from the graduate students' rigorous schedule. Various social functions, an annual seminar, and other informal gatherings are all part of the association's calendar. Present officers are Alastair Watson, president and Kevin Jones, secretary-treasurer.

Students

Graduate Students, Spring 1977

Abid, Hashim N., M.Sc., Iraq
Al-bana, Anton S., B.V.M.S., Iraq (leave of absence)

Al-Darraj, Ali Majeed, B.V.M.S., Iraq
 Allhands, Roger Vernon, D.V.M., Illinois
 Amand, Wilbur, V.M.D., Pennsylvania (leave of absence)
 Anika, Sylvanus, D.M.V., Nigeria
 Ashfaq, Mohammad K., B.V.M.S., Pakistan
 Ballas, Lawrence, M.S., Connecticut
 Barker, Fred, M.S.
 Beilman, Wayne, M.S., New York State
 Bemis, David A., B.S., New York State
 Bloch, Earl, B.S., M.A., New York State (leave of absence)
 Bresset, John David, B.S., New Hampshire
 Callaghan, Daniel, B.A., Pennsylvania
 Chang, Chyan-Chuu, B.V.M., Taiwan
 Chen, Chung-Sung, B.V.M., Taiwan
 Chibuzo, Gregory, D.V.M., M.S., Nigeria
 Craig, Arthur, B.S.
 deLisle, Geoffrey William, B.V.Sc., New Zealand (leave of absence)
 Desiderio, James V., B.S., New York State
 Dewey, Elizabeth Ann, D.V.M., New York State
 Dos Santos, Marcio R., D.V.M., M.Sc., Brazil
 Elston, Ralph Arthur, B.S., M.S., California
 Feher, Joseph, B.S., M.S.
 Flores-Castro, Ricardo, D.V.M., Mexico
 Foss, Isak, D.V.M., Norway
 Gametchu, Bahiru, D.V.M., Ethiopia (*in absentia*)
 Gleeson, Lawrence, B.V.Sc., M.V.Sc., Australia
 Hartland, Bonnie Jane, B.S., New York State
 Haschek, Wanda, B.V.Sc., Australia
 Hoshino, Yasuto, D.V.M., Japan
 Hunt, Brian, B.V.Sc., Australia (leave of absence)
 Hunt, Elaine Louise, D.V.M., California
 Jones, Kevin, B.S., Pennsylvania
 Kalish, Daniel, B.S., New York State (leave of absence)
 Kinyi, Harry S., B.V.M., Kenya
 Krishna Murthy, Kesava, M.V.S., India
 Levy, Danny, D.V.M., Israel
 LaMotte, George B., B.A., M.S., Pennsylvania
 Lovisa, Elise M., B.S., New York State
 Lucio, Eglantina, D.V.M., M.S., Mexico
 Lucio, Martinez Ben, D.V.M., M.S., Mexico
 Manning, Thomas Owen, B.S., D.V.S., New York State
 Maribei, James, D.V.M., M.Sc., California
 Mayhew, Ian, B.V.Sc., California
 Meyers, Theodore Richard, A.A.S., B.S., M.S., Pennsylvania
 Miller, Douglas D., B.S., New York State
 Miller, Douglas R., B.S., New York State
 Munkenbeck, Karen E., B.S., New York State
 Murphy, Elizabeth Lee, B.S., New York State
 Nakajima, Sumio, B.S., Japan
 Panangala, Victor S., D.V.M., M.S., Ceylon
 Rackorsky, Naya, B.S., Israel
 Schat, Karel Antoni, D.V.M., Netherlands
 Smith, Janet Diane, M.S., B.S., Iowa
 Sponenberg, D. Phillip, M.S., B.S., Texas
 Summers, Brian Alan, B.V.Sc., M.Sc., Australia
 Swanson, Robert, B.S., New York State
 Tsai, Shaw Chien, D.V.M., M.S., Rep. of China
 Tung, Ming-Chen, M.S., Rep. of China
 Wade, Susan, M.A., B.A., New York State
 Watson, Alastair, B.V.Sc., B.Ag.Sc., Australia
 Wickes, Mary Ann, B.S., California
 Wolski, Thomas Richard, D.V.M., California
 Yuan, Yang-Dar, B.V.M., M.S., Rep. of China
 Zimmer, James, D.V.M., New York State

Fourth Year, Class of 1978*

Babcock, Gary, Burlington Flats
 Bicknese, Joanne M., Northport
 Bratton, Myron E., Wilmington, Delaware
 Bratton, Patricia D., Smithtown
 Broady, Mark E., Ithaca
 Bruno, Dwight A., Franklin
 Cali, Joseph T., Loudonville
 Carell, Robert J., Dix Hills
 Cerf, Dean, Sloatsburg
 Chamberlain, Thomas P., DeWitt
 Clark, Kathleen M., Newington, Connecticut
 Costlow, David L., Merrick
 DeLong, David, Livingston, New Jersey
 Diez, Jose R., Santurce, Puerto Rico
 Ellis, Laurel A., Burnt Hills
 Evans, Patricia A., Locust Valley
 Fischer, Jonathan M., Cedarhurst
 Franklin, Jessica, Malverne
 Ganes, Dianne R., Brooklyn
 Giaquinto, Francis J., Ovid
 Giaquinto, Wilkes Mary, New York
 Glassman, Peter S., Washington, D.C.
 Goldstein, Mark A., Hicksville
 Gregory, Clare R., Mount Vision
 Guglielmino, Joanna B., Syracuse
 Jacobs, Allen R., Plainview
 Jann, Henry W., Rochester
 Johnson, Paul K., Massapequa
 King, Peter W., Sea Cliff
 Knowlton, Brenda, Fayetteville
 Lafky, Karen Y., Big Flats
 Lea, Pamela, Binghamton
 Levine, Marc L., Douglaston
 Lewis, Steven, Lockport
 Luckow, Kenneth, Franklin Square
 Luckow, Scott, Franklin Square
 Lutgens, Allen Gretchen, Harpswell, Maine
 Lutgens, Kurt, Massapequa
 Marks, Michael, North Miami Beach, Florida
 Matthews, Nora B., Clinton
 McMaster, Carolyn, Williamsville
 McQuade, Joseph T., Brooklyn
 Merrild, George L., Silver Springs
 Meyer, Pamela A., Buffalo
 Miller, Richard L., Great Neck
 Mintzer, Charles M., Great Neck
 Morris, Robert C., Seneca Falls
 Moses, Scott B., Newburgh
 Nashe, George B., New York
 Naum, Robert M., Rochester
 O'Krepki, James M., Spencer
 O'Leary, Timothy J., Painted Post
 Plance, David, Brooktondale
 Pollock, Roy V., North Pownal, Vermont
 Rappole, Robert G., Chautauqua
 Rath, John W., Rochester
 Schmidt, Marilyn I., Park Ridge, New Jersey
 Schoen, Allen M., Flushing
 Schultz, Steven M., Williamsville
 Siegel, Martin J., Syosset
 Sullivan, William H., Forest Hills
 Thompson, Roger C., Plattsburgh
 Tillou, Guy J., Ithaca

* Those cities not followed by the name of a state are in New York.

Truffini, Stanley J., New York
 Widrick, Patrina A., Croghan
 Wilhelm, William R., Landis, North Carolina
 Wilhelmsen, Catherine L., Huntington Station
 Wilson, Julia H., Bethesda, Maryland
 Wirsig, Victoria S., Youngstown
 Wisniewski, Jo-Anne F., Kirkland, Washington
 Zielinski, Karen J., Seymour, Connecticut

Third Year, Class of 1979

Behr, Melissa J., Northampton, Massachusetts
 Binder, Robert S., Plainview
 Blackmore, Kit, Clarence Center
 Boardman, Crager J., Jr., Canton
 Breite, Marshall, Accord
 Burgess, Margaret, Wappinger Falls
 Carlin, Robert, Dix Hills
 Charpentier, Amy D., Lunenburg, Massachusetts
 Cookingham, Carol A., Kenmore
 Cross, Susan E., Tonawanda
 Davis, Eric, Syracuse
 Demson, Martha V., Lynbrook
 DeVries, Richard A., Coeymans Hollow
 Dietze, Amy E., Schenectady
 Dunn, David, Saugus, Massachusetts
 Dziezyc, Joan D., Vernon, Connecticut
 Ehrlich, James L., Eggertsville
 Felton, Elaine, Warsaw
 Ferraglio, Susan A., Brooklyn
 Ferrante, Pamela L., Ithaca
 Foote, Anita C., New York City
 Freedman, Philip L., Roslyn Heights
 Friedman, Jeff A., Forest Hills
 Gardner, Stephen A., Bantam, Connecticut
 Gearhart, Martha S., Rochester
 Gerson, Leslie H., Buffalo
 Haibel, George K., Orchard Park
 Hardie, Elizabeth, Princeton, New Jersey
 Hershkowitz, Lisa, Riverdale
 Hofmeister, Erik K., Owego
 Hotchkiss, Signe, Bliss
 Huntington, Barbara, Ossining
 Keem, Michael D., Cheektowaga
 Knox, Alison M., Ossining
 Kornet, Mitchell E., Bayside
 Korten, Peter C., Cheshire, Connecticut
 Kreger, Leonard D., Morris, Pennsylvania
 Kuntz, Roger B., Rochester
 LeClair, Barbara, Lebanon, New Hampshire
 Lengemann, Frederick, Freeville
 Levine, Marcia, Plainview
 Lin, Kay Sze-Ching, Bronx
 Llop, Quentin H., Buffalo
 Looby, William C., Medford, Massachusetts
 Mantell, Dale D., Lindenhurst
 Martinisi, Venera, New Windsor
 May, Samuel A., Jamaica
 McCormick, Arthur E., Bronxville
 Milligan, Joseph E., Pittstown, New Jersey
 Munschauer, Thomas L., Buffalo
 Murphy, Michael S., Sunderland, Massachusetts
 O'Shea, James E., Forest Hills
 Palermo, Joseph C., Mount Morris
 Palmer, George W., Plattsburgh
 Payne, Richard, Olean
 Peterson, Lorraine E., East Setauket
 Prokop, William, Bayside

Roth, Lois, Brooklyn
 Sanford, Steven P., Scotia
 von der Schmidt, Edward, Bergenfield, New Jersey
 Scipioni, Roberta, Winfield
 Sozanski, Michael S., Horseheads
 Stein, Richard J., Plainview
 Strom, Jeffrey, Floral Park
 Sullivan, Mary A., Rochester
 Szatkowski, Ellen, Rochester
 Tarlach, Natalie, Dundee
 True, Robert G., Framingham, Massachusetts
 Warner, Neal J., Willimatic, Connecticut
 Williams, Ilka Alexandra, Burlington, Massachusetts
 Wolfer, Kevin, Silver Springs
 Zeh, John P., Horseheads

Second Year, Class of 1980

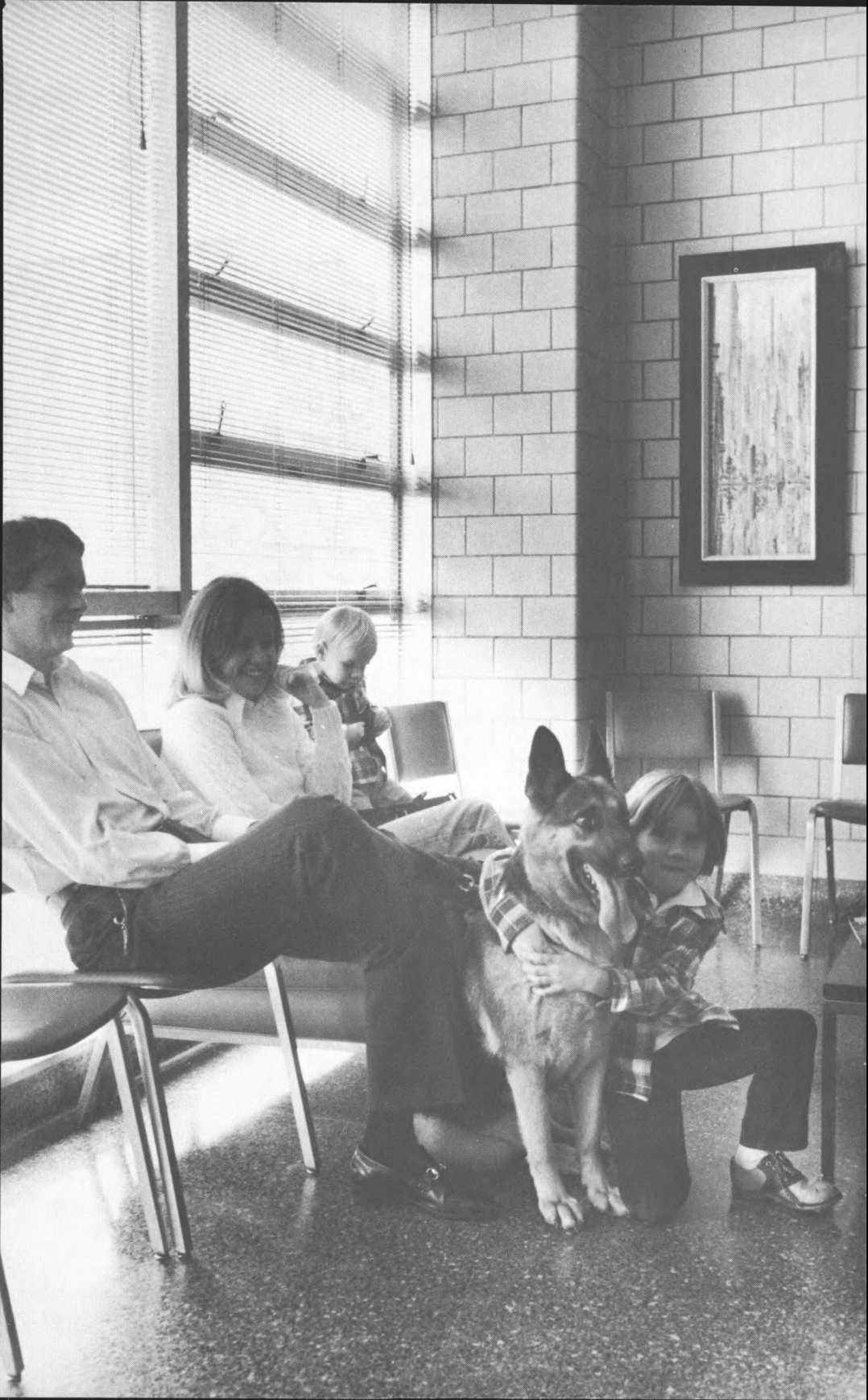
Adsit, Jane C., Baldwinsville
 Arnold, Bette A., Pleasantville
 Baker, Donald, J., Ithaca
 Boothby, Janet M., Alpine
 Bristol, David G., Ithaca
 Brown, Anina LaCour, Newfield
 Camann, Christine T., Syosset
 Caravaty, Mark R., Loudonville
 Chafetz, Eric P., New York
 Cheever, Mary H., Pittsburgh, Pennsylvania
 Citek, Gerald J., Flushing
 Coccarri, Philip J., Babylon
 Cominsky, Deborah B., Flushing
 Conway, Marion B., Massapequa
 Coren, Alan M., Bellmore
 Davies, Hannah, New York
 DeHart, Dorothea A., Cortland
 Duhamel, Ghislaine P., Columbus, Ohio
 Durland, Robert W., Baldwinsville
 Edwards, Allen H., Rochester
 Ellmers, Gordon R., Old Westbury
 Fettman, Martin J., Brooklyn
 Gerstman, Buddy B., N. Woodmere
 Gibson, Mark C., Youngstown
 Griffin, Wayne, Augusta, Maine
 Grodkiewicz, Jeffrey P., Bayonne, New Jersey
 Guard, Charles L., III, Lebanon, Ohio
 Guth, Daniel T., Yorktown
 Hays, James T., Plattsburgh
 Huntley, John P., Utica
 Huse, Jeffrey J., Warnerville
 Irwin, Priscilla S., Storrs, Connecticut
 Jacobson, Andrea E., New York
 Johnson, Margaret E., Ithaca
 Kinnarney, Joseph H., Johnsbury
 Kornheiser, Kenneth M., Boulder, Colorado
 Kramer, Jeffrey M., Woodbury
 Kranz, Mark A., Clymer
 Laczak, John P., Wakefield, Rhode Island
 Law, Karen D., Nanuet
 Lesser, Sue Ann, Elmira
 Lodahl, Claire S., Ithaca
 Maas, Jennifer, Boxborough, Massachusetts
 MacNamara, Brian S., Harriman
 Mackay, Marianne R., Albany
 Mainville, Debra C., Ithaca
 Marder, Brian, Bellmore
 Marienberg, William H., Commack
 Mattucci, Marguerette V., Ithaca
 May, Jonathan E., Mamaroneck

McEntee, Michael F., Ithaca
 Meier, Roderick S., Rochester
 Meyer, Robert E., Cheektowaga
 Mills, Walter S., III, Chappaqua
 Moran, Jamie J., Ithaca
 Nizolek, Joseph T., Trenton, New Jersey
 Palmeter, Andrew T., Richfield Springs
 Pinkston, Lucy L., Brooklyn
 Price, Richard P., Fairfax, Vermont
 Reisman, Robert W., Yorktown Heights
 Rostkowski, Charlene M., Middletown Springs,
 Vermont
 Sarfaty, Deborah, Wantagh
 Schenkein, Ronnie L., New York
 Scherr, Les J., New York
 Schulman, David J., Richmond Hill
 Siegler, Larry P., Franklin Square
 Simoncini, Diane C., South River, New Jersey
 Stockwell, David C., Fort Plain
 Tintle, Kevin L., Piscataway, New Jersey
 Wilkinson, John E., Louisville, Tennessee
 Yanoff, Susan R., Delmar

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 Brewster, Dennis M., Ithaca
 Brooks, Marjory B., Utica
 Brothers, Sherry L., Ithaca
 Bucki, Barbara M., West Seneca
 Budik, Louis, Kenmore
 Chase, Thomas H., Keene, New Hampshire
 Christiansen, Daniel J., Warren, New Jersey
 Clark, David M., Ithaca
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 DeVinnie, Charles D., Fairport
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 Feldman, Jean F., Hamburg
 Garry, Franklyn B., East Berne
 Goldfarb, Iris L., Bronx
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 Hamilton, Robert D., Lockport
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 Higgins, Florence M., Queens Village
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Jensen, Lisa I., Mount Vernon
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 Lanfranchi, Ronald G., Brooklyn
 Lankenau, Cynthia J., Cossackie
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 Lesser, Frederick R., Big Flats
 Levine, Susan A., Ithaca
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 MacKellar, Ian J., Lyons Falls
 McEvoy, Elizabeth O., Bangor, Maine
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 Meyer, Linda J., Far Hills, New Jersey
 Meyers, Claudia E., Syosset
 Michaels, Ian C., Manhasset
 Miller, Burton D., Great Neck
 Norman, Susan, Saranac Lake
 Ohm, Stephen P., Acra
 Padilla, Mary, Pleasantville
 Patterson, Jon S., Westwood, New Jersey
 Perdrizet, John A., Bethel, Connecticut
 Polak, Donna M., Briarcliff Manor
 Powers, Michael S., Milford
 Purdy, Stephen R., Ithaca
 Radin, M. Judith, Johnson City
 Richter, Keith P., St. James
 Robb, Edward J., Massapequa Park
 Ross, Michael W., Chestertown
 Saloom, Helen G., Boxford, Massachusetts
 Saltman, Roger L., Prattsburg
 Schutzman, Howard, Elmont
 Simons, John W., Johnsbury, Vermont
 Stewart, Virginia A., Providence, Rhode Island
 Tasillo, Susan A., Andover, Massachusetts
 Thompson, Belinda S., Ithaca
 Tintle, Dean G., Pompton Lakes, New Jersey
 Tseng, Sze-Fong, Florina, Silver Spring, Maryland
 Valentine, Beth A., Northport
 Wachter, Allen F., Lockport
 Watson, Lorraine A., New York
 Weiss, Linda J., Hamden, Connecticut
 West, Gerald A., Seneca Falls
 Wickes, Mary A., Ithaca
 Wilson, Sheila A., Huntington Station
 Wolfe, Eileen M., Rochester
 Wygal, Barbara B., Ithaca
 Zdrojewski, Julianne, Marilla





Cornell University

Index

Academic calendar, 2
Admission, 8; graduate, 12
Advanced standing, 11
Agriculture and Life Sciences, College of,
 courses in. *See* Combined courses
Anatomy, 25
Animal practice requirement, 9
Announcements, list of, 56
Application procedure, 10
Avian and Aquatic Animal Medicine, 36

Baker, James A., Institute for Animal Health, 7
Biochemistry, 26

Careers for veterinarians, 19
Clinical Sciences, 36
Clinical Service Courses, 39
Combined courses, 12
Committees of the College, 47
Computing facility, 8
Conduct of students, 21
Cornell Chapter of S.C.A.V.M.A., 49
Course descriptions, 25
Curriculum, 18

Diagnostic Laboratory, 40
Dining facilities, 21
Double registration. *See* Combined courses

Expenses. *See* Finances

Facilities, research, 6
Faculty, 44
Fees. *See* Finances
Feline Research Laboratory, 6

Finances, 13
Financial aids, 13

Graduate students, list of, 49
Graduation requirements, 17

Health services, 20
Honor societies, 18
Housing, 21

Legal requirements for practice, 20
Library, 6
Living costs. *See* Finances
Loans, 13

Mastitis Control Program, 7
Microbiology, 33

Pathology, 31
Pharmacology, 26
Physical Biology/Section of Physiology, 27
Physiology, Biochemistry, and Pharmacology, 26
Poisonous Plants Garden, 8
Prizes, 15

Registration, 12
Research: facilities, 6, feline, 6, poultry and
 aquatic animal disease, 6, sheep and cattle, 8

Scholarships, 14
Students, list of, 50

Teaching Hospital, 47
Tuition. *See* Finances

University requirements, 12

(1) Main Entrance, Schurman Hall. (2) James Law Auditorium. (3) Library.
(4) Multicategorical Research Building. (5) Microbiology, Physical Biology.
(6) Anatomy and Physiology. (7) Pathology, Avian Diseases. (8) Large Animal Clinic.
(9) Small Animal Clinic and Hospital. (10) Large Animal Hospital. (11) Medicine
and Obstetrics, Ambulatory Clinic, and Mastitis Control. (12) Research and
Ancillary Barns. (13) Garage and Farrier Shop.

List of Announcements

Following is a list of *Announcements* published by Cornell University to provide information on programs, faculty, facilities, curricula, and courses of the various academic units.

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Graduate School of Medical Sciences
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Summer Session
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* The *Announcement of General Information* is designed to give prospective students pertinent information about all aspects and academic units of the University.

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Ithaca, New York 14853

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