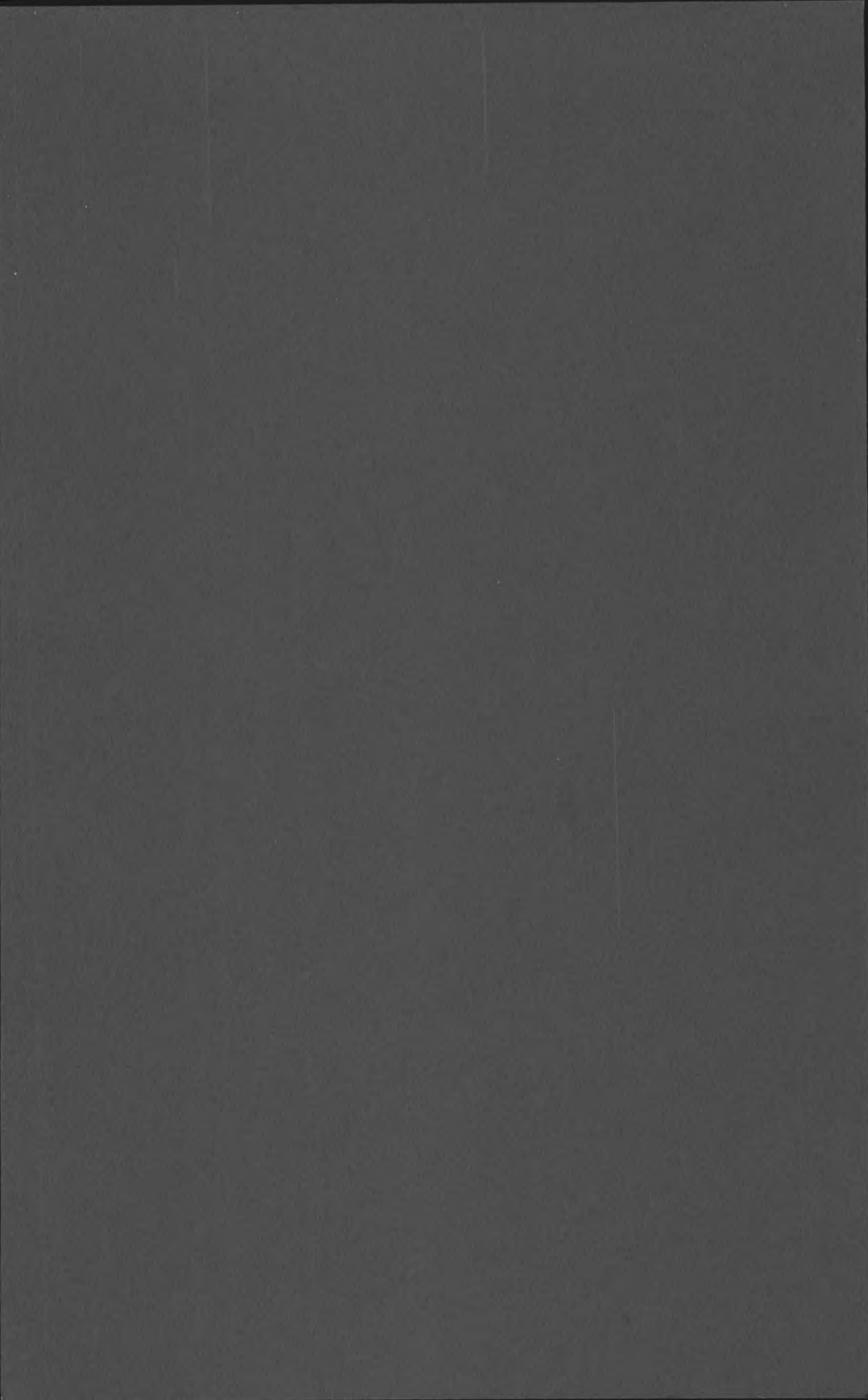




Cornell University
Announcements

New York State
Veterinary College

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



Cornell University

New York State
Veterinary College

1973-74

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Cornell University Announcements

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Cornell Academic Calendar

Registration, new students
 Registration, continuing and rejoining students
 Fall term instruction begins
 Instruction suspended for Thanksgiving recess, 1:10 p.m.
 Instruction resumes
 Fall term instruction ends, 1:10 p.m.
 First day of final examinations
 Last day of final examinations
 Registration, new and rejoining students
 Registration, continuing students
 Spring term instruction begins
 Instruction suspended, 1:10 p.m.
 Instruction resumes
 Spring term instruction ends, 1:10 p.m.
 First day of final examinations
 Last day of final examinations
 Commencement Day

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

Thursday, August 30
 Friday, August 31
 Monday, September 3

 Wednesday, November 21
 Monday, November 26
 Saturday, December 8
 Thursday, December 13
 Saturday, December 22
 Thursday, January 24
 Friday, January 25
 Monday, January 28
 Saturday, April 6
 Monday, April 15
 Saturday, May 11
 Friday, May 17
 Monday, May 27
 Monday, June 3

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

Summer Sessions Calendar, 1974

Registration, three week summer session,*
 three-week summer session instruction begins
 Registration, eight-week summer session,
 eight-week summer session instruction begins
 Three-week summer session instruction suspended
 Three-week summer session final examinations,
 three-week summer session ends
 Registration, six-week summer session
 Six-week summer session instruction begins
 Six- and eight-week summer sessions instruction suspended
 Six- and eight-week summer sessions final examinations begin
 Six- and eight-week summer sessions end

Wednesday, June 5
 Monday, June 17
 Monday, June 24
 Tuesday, June 25
 Wednesday, June 26
 Thursday, June 27

 Wednesday, August 7
 Thursday, August 8
 Friday, August 9

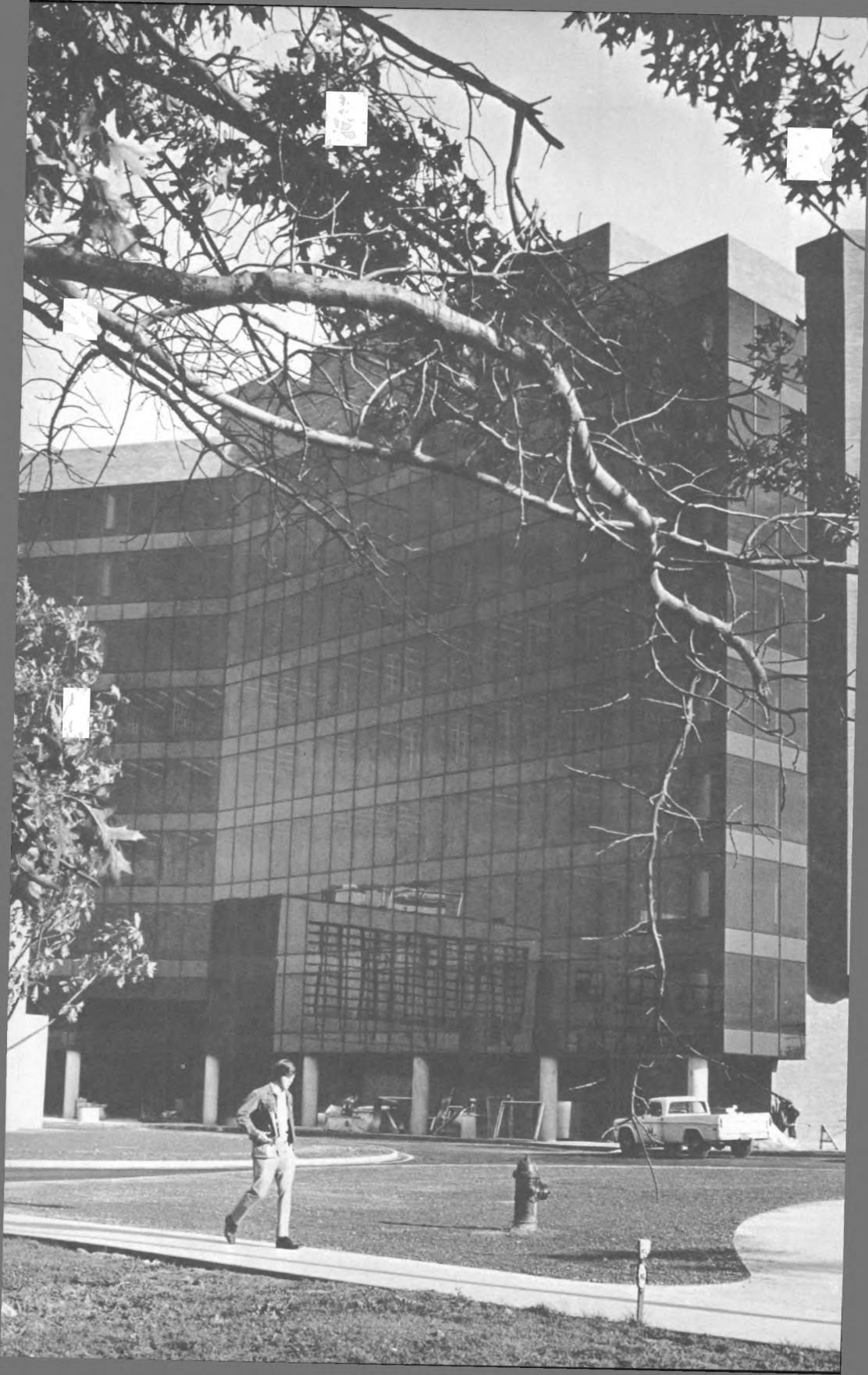
* All dates for the three-week session are tentative.

Announcement

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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.



Cornell University

The Veterinary College

The New York State Veterinary College, established by an act of the State Legislature in 1894, is on 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 north of New York City and 50 miles south of Syracuse. The Veterinary College is located on the eastern edge of the Cornell University campus along Route 366. The buildings occupy nearly twelve acres and constitute one of the finest physical plants possessed by any of the world's veterinary colleges. The equipment, of the most modern type, is ample for teaching and research in the basic and clinical sciences.

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 56,000 volumes and regularly receives 1,200 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 62,000 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 SUNY Biomedical Communications Network terminal located in Mann Library provides ready access to an extensive computerized medical and biomedical bibliographical data base.

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.

Poultry Disease Research

Poultry Disease Research is done both on the campus in conjunction with the diagnostic and teaching laboratory and at the research 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.

The Snyder Hill facilities consist of a two-story laboratory 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. Housing for investigators and graduate students are also available.

Diagnosis

The Veterinary College 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.

New York State Mastitis Control Program

This program is a part of the Department of Large Animal Medicine, Obstetrics, and Surgery, and has three primary concerns: (1) teaching, (2) offering consultation and diagnostic service to the practitioner, and

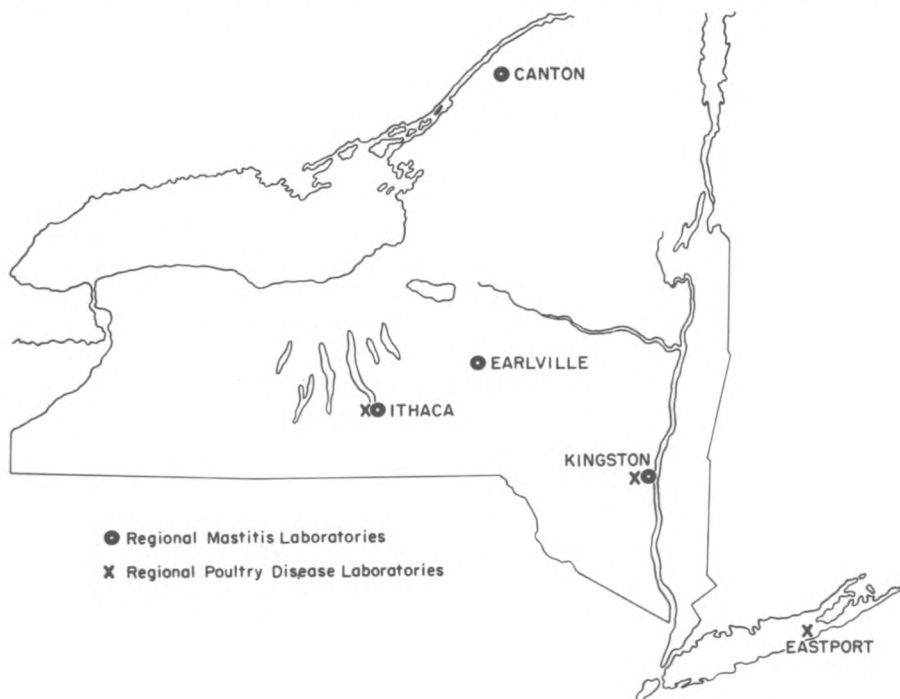
(3) field research on mastitis control. Four diagnostic laboratories, located in dairy areas of the state, are operated within the program.

The laboratory at Canton is directed by Dr. L. A. Wager, and serves veterinarians and dairymen in eight northern New York counties with a cow population of approximately 180,000. The laboratory is located on the campus of the State University of New York, Agricultural and Technical College at Canton, which permits some teaching responsibilities in addition to diagnostic services.

Dr. G. L. Hayes directs the laboratory at Earlville, which offers service in ten counties with a cow population of approximately 257,000. The laboratory located at Kingston is directed by Dr. A. C. Fritz and offers service in seventeen counties with a cow population of approximately 134,000.

The central laboratory is located in the New York State Veterinary College at Ithaca, where student training, research programs, and diagnostic services are offered. Cooperative research with the Mastitis Research Section is carried out on basic and practical aspects of mastitis prevention. The central laboratory serves twenty-two counties of central and western New York, which include a cow population of approximately 326,000.

Dr. W. E. Linquist, the supervising veterinarian, and Dr. D. S. Postle, director of the program, are located at the central laboratory.



The Veterinary Virus Research Institute

In September 1950 the Board of Trustees of Cornell University established a new unit in the New York State Veterinary College: the Veterinary Virus Research Institute. Formation of the Cornell Research Laboratory for Diseases of Dogs was approved as a section of the Institute.

The primary objective of the Institute is to prevent loss from infectious diseases in animals. Toward this end, basic research is conducted upon organisms which 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 post-graduate visiting investigators are accepted.

After consideration of the many technical difficulties involved in work with viruses and other living 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 so that they can be cleaned and decontaminated efficiently to avoid unplanned infections. Specific pathogen-free animals, including dogs, pigs, chickens, guinea pigs, rabbits, and mice, 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 a flock of sheep. On this tract a ten-acre pasture is irrigated artificially to maintain a natural infestation of internal parasites under controlled conditions. A sheep barn is available which 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, on-line computing facilities, and a whole body counter for fundamental studies in radiation biology has been constructed on a forty-two acre tract of land provided by the

University. This facility is an integral part of the Department of Physical Biology.

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 Veterinary College 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.

Biology Computing Facility

A computer facility is located at the Radiation Biology Field Laboratory, 925 Warren Road. It is operated by the Department of Physical Biology and is intended primarily for applications in the health sciences. The equipment consists of a PDP-15 main computer and a LAB-8 satellite computer, with on-line connections to a number of laboratories and capabilities for real time signal analysis, graphics, and interactive computing. The services of the facility are available to anyone at Cornell.

Admission

Entrance Requirements

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

<i>Prerequisite Courses</i>	<i>Semester Hours</i>
Biology or zoology (with laboratory)	6
English (Must include substantial elements of English composition and public speaking. Applicants must provide evidence to this effect if the course name is not clearly indicative.)	6
Modern college mathematics (Must include elements of analytical geometry and calculus. Numerical methods, probability, sets, computer applications and the like are also desirable. Mathematics courses designed for biology majors are generally acceptable.)	6
Physics (with laboratory)	6
Chemistry (Must include a course in organic chemistry and its associated laboratory, and 4 semester hours of biochemistry.)	16

General microbiology (with laboratory)	3
Genetics	3
Basic nutrition*	3

If the undergraduate college or university has given advanced placement college credit for a course, the student is not required to repeat the course in fulfillment of the above pre-requisites.

Since competition for admission to this College is very keen, it is recommended that the student choose an alternate career goal which will determine the choice of other courses taken. Applicants are urged to consult their undergraduate advisers for help in this regard.

* If no course in basic nutrition is available at the candidate's undergraduate school, this requirement may be satisfied as an elective during the first year of Veterinary College.

The Animal Practice Requirement

At least one summer, ten weeks, shall be spent working with large animals, preferably dairy cattle. This requirement will be met usually by working on a farm which deals with at least one of the large domesticated animal species.

At least one summer, ten weeks, shall be spent working with some phase of small animal work. This requirement may be met by working for a small animal practitioner or through zoo, laboratory animal, poultry, or similar types of animal work.

For each of the above requirements the applicant must submit a brief report of the completed work and the employer will submit a letter of evaluation to the Office of Student Administration of the Veterinary College.

The two summers of work shall be completed before the student's junior year at the Veterinary College. One summer must be completed by July 1 of the year in which the student would like to matriculate. This requirement applies equally to both sexes.

Application Procedure

After September 1 of the year preceding the one in which admission is desired, the applicant should write to the Office of Admissions, Day Hall, Ithaca, New York 14850, requesting the application form for admission to the Veterinary College. The application form must be returned to the admissions office no later than December 15. Transcripts of all college work, through the fall semester of the year in which the application is made must be sent to the Office of Admissions, Day Hall, as soon as possible. All other material is to be sent to the New York State Veterinary College, Office of Student Administration, Ithaca, New York 14850.

If the applicant has applied at any time during the three preceding years, he should write to the Admissions Office, Day Hall, asking that his folder be reactivated. All information must be updated.

Although it is not required, applicants should request the Educational Testing Service, Princeton, New Jersey 08540, to send a report of their Scholastic Aptitude Test scores to the New York State Veterinary College, Office of Student Administration, Ithaca, New York 14850.

In addition, all applicants are required to take the Graduate Record Examinations Aptitude Test as administered by the Educational Testing Service. Arrangements should be made to take the Graduate Record Examinations in either October or December to allow sufficient time for the results to be received by the Veterinary College. (Applicants will enter Institution Code R 2549-4 00 New York State Veterinary College in item 10 of the GRE application.) All procedural requirements will be sent with the application form.

The number of students that can be admitted annually is limited, and the number of applicants who can meet the requirements exceeds the number that can be accepted. A Committee on Admissions of the faculty of the Veterinary College will select those to be admitted after considering not only the formal academic preparation but also the available evidence bearing on each applicant's character, seriousness of purpose, and fitness for the profession. After a preliminary review of the applicant's credentials, and if in the opinion of the Committee on Admissions that applicant merits serious consideration for admission, he will be required to come to the Veterinary College for a personal interview with the Committee on Admissions.

Priority of application is not necessarily a determining factor in the selection of students to be admitted. Nevertheless, the collection and review of the several documents require time. The Committee on Admissions begins its work early in the year. Therefore, it is advantageous to the candidate to file his application early. December 15 is the latest date for filing applications.

It is the policy of Cornell University actively to support equality of educational opportunity. No student shall be denied admission to the University or be discriminated against otherwise because of race, color, creed, religion, national origin, or sex.

Foreign students are usually required to take at least one year of the preveterinary study in an approved college or university in the United States. The University maintains an International Student Office, 200 Barnes Hall, and foreign students are requested to write to that office for any information they may need, or to

consult the staff about any problems they may have.

The obligation to understand and meet the requirements stated above rests solely with the applicants. Students who have not completed all the requirements for admission must do so by July 1 of the year in which they would like to matriculate.

University Requirements

Applicants for admission must not only satisfy the 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 application must pay a \$50 registration fee. Candidates are warned not to send cash through the mails. A check, draft, or money order should be made payable to *Cornell University* and should be sent to the Office of Admissions, Day Hall.

If the candidate withdraws before the due date of his 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 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 during the latter part of the period whereby certain course credits in the veterinary curriculum can be applied toward completing the requirements for the Bachelor's degree.

In these instances three years are ordinarily spent as a candidate for the baccalaureate degree before the application for veterinary medicine is filed. It should be clearly understood that no assurance can be given in the beginning that candidates will be permitted to complete this plan, since decision on admission to the veterinary course cannot be given until the admission requirements of the Veterinary College have been completed.

Registration

Every student must register at the office of the

director of Student Administration of the Veterinary College. This *must* be done before the close of the regular registration unless the student has received special permission from the director.

Admission to Advanced Standing

Applicants for admission to advanced standing as members of the second-, third-, or fourth-year class must present the necessary educational qualifications for admission to the first-year class and must pass satisfactory examinations in all of the work for which they desire advanced credit.

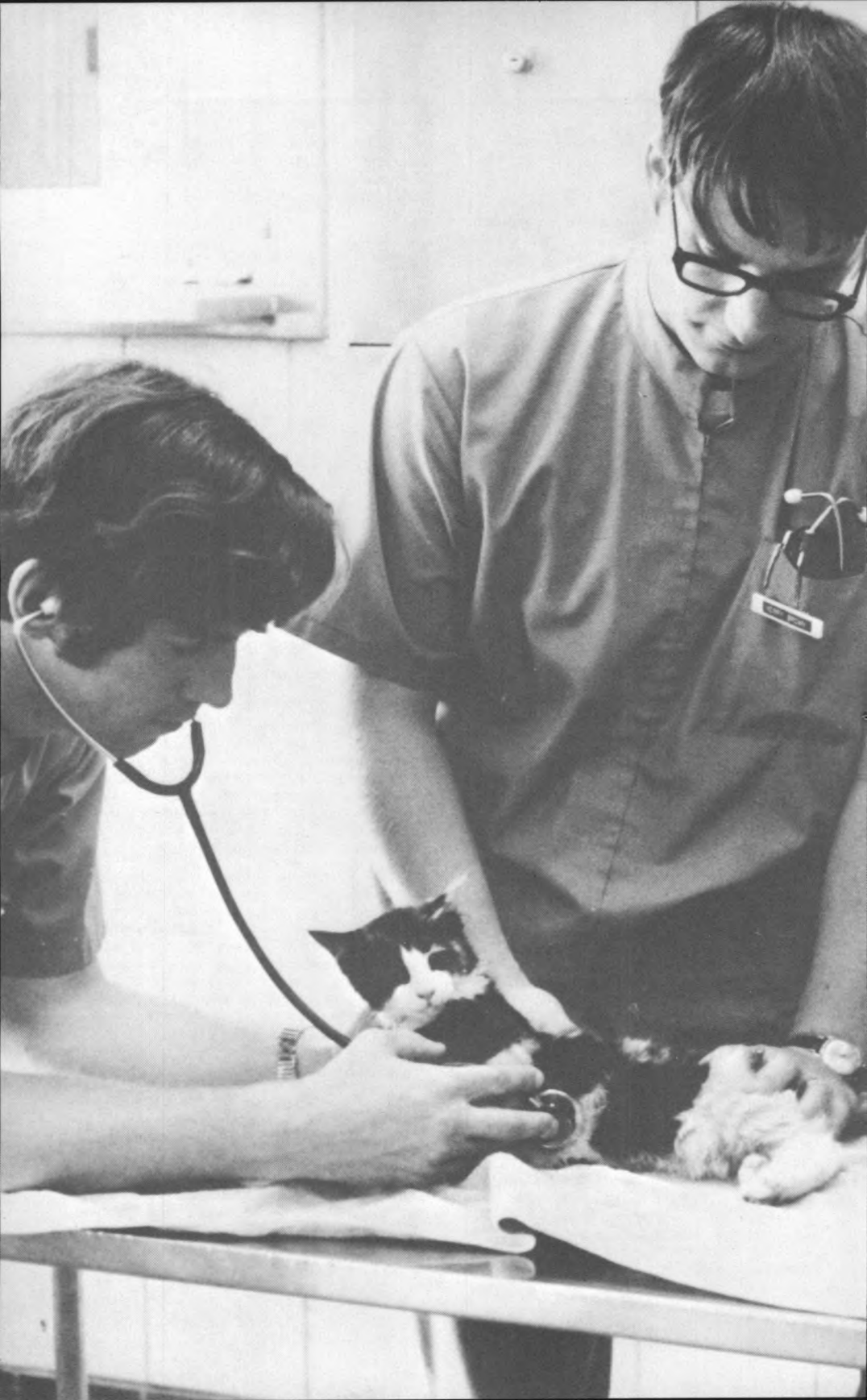
Admission to the Graduate School

Graduates of this College or other colleges may enter the Graduate School of Cornell University and pursue work for the degrees of M.S., Ph.D., or D.Sc. in Veterinary Medicine in the Veterinary College and allied departments of the University. A prospective graduate student should consult the *Announcement of the Graduate School* and apply to the dean of the Graduate School.

Applicants for graduate study from countries other than the United States and Canada are requested to include in their credentials the results of the Graduate Record Examinations Aptitude Test except in cases where this Examination is not given in reasonable proximity to the student's home. Where the Graduate Record Examinations are not available the student is requested to submit, instead, the results of the College Entrance Board of Examination Scholastic Aptitude Tests.

The Veterinary College, 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 facilities for the prosecution of such work. 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. 23-35) 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 now transfer one year's residence credit for that work toward the Doctor of Philosophy degree whenever his 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 Division 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. He must have demonstrated by published papers his ability to do independent meritorious research.
3. He must have offered to the Division satisfactory evidence of his ability to read accurately the French and German literature in his field.

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 will select a member of the faculty in veterinary medicine to serve as chairman of his Special Committee. The faculty of the Division 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 Division for supervising his work. The candidate's work must fall in the following categories:

1. Advanced courses in any of the sciences which have a relation to medicine. Selected courses which 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 shall credit be granted for courses which 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 Veterinary College or of the Medical College.

All candidates must take at least two-thirds of their work in courses that may 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 shall be deemed to have been satisfactorily completed only upon receipt of a regular transcript of credits. Following completion of his course work, each candidate for this degree shall present an acceptable monograph or thesis in the area of his special

interest and shall submit to a general examination covering the subject matter of his work. The Special Committee shall set the time and place of his examination and invite all members of the Division and all members of the graduate faculty of other fields who have participated in his training to attend. They shall have the right to examine the candidate and to express to the Special Committee their opinions of the candidate's competence, but the Special Committee alone shall be responsible for recommending him for the degree. The recommendation shall be addressed to the faculty of the Division of Veterinary Medicine of the Graduate School, which then shall make recommendations to the Graduate School.

Expenses

Tuition

Tuition is \$1,950 a year for each student in the Veterinary College who is a resident of New York State at the time of his registration for any term.

Tuition is \$2,550 a year for students who do not qualify as New York State residents.

Since physical presence in the state, especially for persons under age, by no means constitutes legal residence, applicants who are at all doubtful of their right to qualify as New York State residents should address inquiries to the Director, Student Administration, Veterinary College.

Tuition becomes due before registration for each term. Any student who fails to pay Cornell or other tuition may expect termination of his registration in the University. For further information, consult the *Announcement of General Information*.

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

Other Fees

Every student is held personally responsible for any injury done by him to any of the University's property.

Assessments, charged to the student's account and payable at the Bursar's Office, are levied in certain circumstances, under the following rules of the University:

1. A matriculated student desiring to register after the close of registration day shall first pay a fee of \$10 and present a letter of permission from the director of student administration.
2. A student desiring to file his registration of studies after the date set by his college for filing shall first pay a fee of \$10.
3. A student desiring to take an examination

or other test for the removal of a term mark of "incomplete" shall first pay a fee of \$10 for each examination or other test.

4. A student desiring to make an appointment for the required medical examination or conference after twenty days from the last registration day of the term shall pay a fee of \$2.

For reasons satisfactory to the proper authority any of the above mentioned assessments may be waived in any individual case if the student's failure to comply with the regulation was due to ill health or to other reasons beyond his control. Application for such a waiver should be made to the Director of Student Administration.

Additional Living Costs

Living costs cannot 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 is estimated at \$1,500. Laundry, done in Ithaca, may require \$30 to \$50 a term. Books, instruments, and supplies will cost \$100 to \$125 a term. Additional allowance must be made for clothing, travel and incidentals.

Financial Aids

Scholar Incentive Program

Applications for the New York State Scholar Incentive Program should be filed before July 1 for each academic year but will be accepted up to December 1. Applications for the spring semester only have an April 1 deadline. Annual application is required.

Loan Funds

Sources of support available for loans to Veterinary College 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; the Health Professions Loan and Scholarship Program; the Munderback Veterinary Fund; the Sunderville Veterinary 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; and the Charles H. Webster Veterinary Fund. There are two emergency loan funds available through the Director of Student Administration. One is funded by the Women's Auxiliary to the New York State Veterinary Medical Society and the other by Omega Tau Sigma fraternity. Veterinary students are also eligible to apply for loans from other funds held by the University. Most of these are

administered through the Office of Student Aid. Students who are in real need should not hesitate to apply for assistance. It is suggested that students discuss their needs with the director of student administration before applying.

Undergraduate Scholarships

Needy undergraduate students who have done well scholastically may receive help from various scholarship funds. Discretion over the amount of money granted is vested in committees of the University who evaluate the merits of the applicants. Students interested in financial aid should speak with the director of student administration. There are many scholarships and grants-in-aid open to all University undergraduates, as well as several which are specifically for veterinary students. The scholarships and prizes for veterinary students are described here.

Applications are received at a time announced each spring and the awards are made for the following academic year. Payment is made by deduction of half the amount of the scholarship from University charges for each semester.

Valentine Mott Knapp Scholarship. This annual scholarship of the value of \$600 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 financial need.

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 Veterinary College. Nine scholarships of \$600 each are available.

Tuition Scholarships. The trustees have authorized a limited number of scholarships, each of an annual value of \$600, to be awarded each year by the Veterinary College. The scholarships are awarded to undergraduate students who show promise of becoming outstanding veterinarians in the judgment of the faculty and who are not residents of New York State. Each student holding a scholarship must maintain a standing satisfactory to the faculty.

Bertha Hamilton Scholarships. Since 1972 a portion of the annual income of the Bertha Hamilton Trust has been donated to the Veterinary College for scholarships to be awarded by the Faculty on the basis of academic performance and financial need. Sixteen

scholarships of \$600 each have been available each year.

Allen Products Company Scholarship. This scholarship of \$1000 is awarded at the end of the first year and will be continued for three years, subject to review by the Committee on Scholarships. The original award and the annual renewal are based on academic performance and financial need.

Yonkers Raceway Foundation Scholarship. By action of the executive committee of the Yonkers Raceway Foundation, an endowed scholarship of \$500 was established at the Veterinary College to be awarded by the Committee on Scholarships of the College to a needy student who is 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.

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.

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.

Women's Auxiliary to the New York State Veterinary Medical Society Scholarship. This scholarship is to be awarded each year to a student at the end of the sophomore year. The awarding of this scholarship will be based on the applicant's financial need and his ability to do creditable academic work.

Maurice H. Skyer Memorial Scholarship. Provided by the Monticello Chapter of the U.S. 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.

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

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 Large Animal Medicine, Obstetrics, and Surgery.

Merrimack Valley Kennel Club Scholarship. The Club, of Derry, New Hampshire, sponsors an award of \$200 to a student to be selected on the basis of academic ability and financial need.

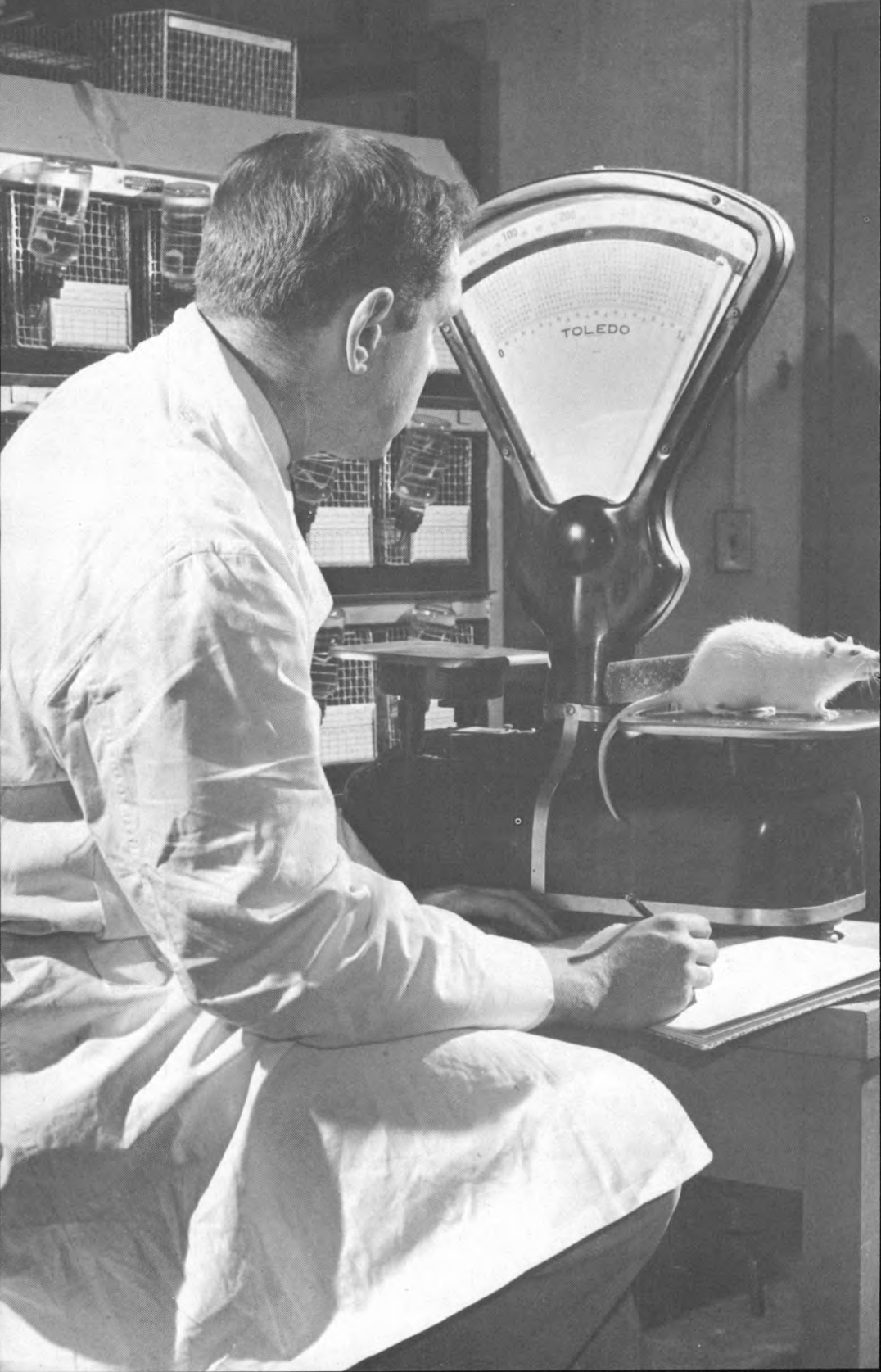
Prizes for Veterinary Students

The Horace K. White Prizes, established by Horace K. White of Syracuse, are awarded annually to meritorious students in the graduating class of the College. They consist of a prize of \$125 to the first in merit and a prize of \$75 to the second in merit.

The Grant Sherman Hopkins Prize of \$90 in veterinary anatomy was endowed by Mrs. Ann Ottaway Hopkins in 1955 in memory of her husband. Dr. Hopkins served Cornell University for forty-five years (1889-1934). Upon the opening of the Veterinary College in 1896, he became a member of the original faculty as assistant professor of veterinary anatomy and anatomical methods. He was made a full professor in 1903 and served in that capacity until his retirement in 1934. The prize will be awarded by the Veterinary College faculty upon the recommendation of the staff of the Department of Veterinary Anatomy. It will be awarded to a member of the graduating class on the basis of interest, ability, perseverance, and performance in the work in veterinary anatomy. Special consideration will be given to extracurricular work in animal morphology. Although scholarship is an important consideration, the award is not based wholly on that criterion.

The Jane Miller Prize of \$90 in physiology is awarded to the student or students doing the best work in this subject. The amount is usually divided into two prizes which are awarded at the end of the second year.

The James Gordon Bennett Prize of \$120 is awarded to members of the graduating class. The award is based upon the work in the clinics giving evidence of the ability of the recipient to handle diseased animals humanely. Special emphasis is laid upon the ability of the student to apply effectively local and general anesthesia.



The Anne Besse Prize of \$100 is awarded in the principles and practice of veterinary medicine. It is based upon the work in the clinics giving evidence of ability in clinical diagnosis.

The Charles Gross Bondy Prizes consist of two annual prizes awarded to the two fourth-year students who rank highest in proficiency in the courses in practical medicine and surgery of small animals. The total prize is \$100.

The Mary Louise Moore Prize in Bacteriology was established by a bequest of Dr. Veranus A. Moore in honor of his wife. Dr. Moore was a member of the original faculty of the Veterinary College. He was professor of pathology, bacteriology, and meat inspector from 1896 to 1926, and dean of the Veterinary College from 1907 to 1929. The income of the endowment (\$80) may be awarded each year, upon recommendation of the head of the Department of Microbiology and with the approval of the dean of the College, either as a prize to students who have done the best work in the department or as a subsidy to encourage individual research work of students by defraying expenses of their experiments.

The Poultry Disease Prize was established by Dr. Nathan Wernicoff '31, and Dr. Tevis Goldhaft '35 of Vineland, N.J., for the purpose of stimulating interest in diseases of poultry. The prize consists of \$50 for the best composition or essay, or the best original work reported by a member of the fourth-year class. Competing papers must be submitted not later than the first week of the second term of the college year to the dean, who will appoint a suitable committee to read them and make recommendations on the award. The award will not be made if, in the judgment of the committee, none of the papers submitted is considered to be sufficiently meritorious.

The Alpha Psi Prize is given by Beta (Cornell) chapter of the Alpha Psi Fraternity. It was suggested by the donors that this prize, a \$25 United States savings bond, be "awarded by the faculty to a member of the fourth-year class who has shown by his scholarship, personality, character, the breadth of interest that he is capable of elevating the prestige and expanding the services of veterinary science in practice, in education, and in its relationship to community, state, and national welfare."

New York State Veterinary Medical Society Prizes amounting to \$100, were established by the New York State Veterinary Medical Society. They are awarded to members of the fourth-year class who present and have approved the best case reports. The award extends from April 1 to March 31. All case reports to be considered must be received at the office of

the chairman of the Committee of Senior Seminar Course 899, by March 31. Each case report must be reviewed and approved by the head or designated faculty member of the department in which the case was received, studied, and treated. The executive board of the New York State Veterinary Medical Society reserves the privilege of requesting any prize recipient to furnish either a copy of his paper or an abstract for publication in the organ of the society, *Veterinary News*.

The Women's Auxiliary A.V.M.A. Prize of \$100 is awarded annually to a senior student for a special contribution which advances the standing of the Veterinary College on the campus by special contributions of an extracurricular nature.

The Jacob Traum Student Award was established by friends and colleagues at the time of Dr. Traum's retirement as chief scientist of the United States Department of Agriculture Plum Island Animal Disease Laboratory. Dr. Traum was graduated from Cornell University in 1905 and served the veterinary profession in a variety of capacities, particularly in the U.S.D.A. and at the University of California. The award will be given annually to the senior student in the New York State Veterinary College who, in the judgment of the dean, has exhibited in his scholastic career superior interest and accomplishments in bacteriology, epizootiology, pathology, and virology, including aptitude for and expressed interest in research on infectious diseases. The prize is a cash award of \$60.

The Merck Manual Awards given by Merck and Company, Inc., are presented to members of the graduating class. The recipients of the awards (veterinary manuals embossed with recipients names) are determined by the dean and director of student administration.

The Malcolm E. Miller Award was established in 1965 by Mrs. Mary Miller Ewing in memory of her husband, Dr. Malcolm E. Miller '34, a former professor of anatomy and 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 prize is a cash award of \$50.

The Upjohn Clinical Awards were established in 1966. The Upjohn Pharmaceutical Company offers prizes for unusual proficiency in the Large Animal Clinic and in the Small Animal Clinic. The winners are selected by the staffs of the respective departments. A cash prize of \$200 is divided between the two clinics.

United Farm Agency Award. This award is administered by the Director of Student Administration in accordance with the intent of the board of directors of the United Farm Agency. Awards will be made to senior students with rural interests who will be practicing in rural areas.

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 has an appointment or not.) Students are also entitled to most laboratory and X-ray examinations and initial consultation with a specialist when indicated for diagnosis and treatment and ordered by a staff physician. Hospitalization in the Sage Infirmary with medical care for a maximum of fourteen days each term and emergency surgical 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 for him to remain in the University, he may be required to withdraw.

Elective Student Accident and Sickness Insurance Plan

Insurance is available on a voluntary basis to supplement the services as outlined above. For example, hospitalization in Sage Infirmary in excess of fourteen days a term, and expenses for illness or accidents outside Ithaca both during the academic year and during vacation would be covered. Unless students have other insurance to supplement medical services provided by the University Health Services, they are strongly urged to take advantage of this plan. Information about this insurance may be obtained at the Gannett Medical Clinic, where a representative of the elective insurance company has an office.

Health Care Plan for Student Spouses

The University Health Services offers a Prepaid Health Care Plan for student spouses which 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 surgical 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 student when he is 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, 10 Central Avenue, Cornell University, Ithaca, New York 14850.

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 5,400 students. These facilities are located in two areas which lie to the north and west of the central campus. For detailed descriptions of various housing accommodations, students should consult the *Announcement of General Information*.

Students are not subject to a residence requirement, and should note that acceptance to Cornell University does not necessarily 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 candi-

date 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 dormitory housing is available to single graduate students upon application to the Student Housing Office, Day Hall, Cornell University, Ithaca, New York 14850.

Stage Hall, the graduate center, provides dormitory 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.

Married Students

The University maintains apartment accommodations for approximately 420 married 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 Hasbrouck Housing Office, Pleasant Grove Road, 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 Facilities

Cornell has no formal dining requirements for its students. The University maintains a number of dining services in various locations on campus, thus enabling students to eat what, when, and where they choose whether or not they live in University residence halls. Optional dining arrangements are offered as follows:

1. A Co-Op Dining Program, participation in which (one of four options) allows students to eat all they want at four Co-Op dining centers at a food-cost savings. Membership entitles students to become a part of the Co-Op Dining Advisory Council, which enables them to make recommendations regarding menus, decor, and service. For information,

students should write to Co-Op Dining, 217 Day Hall, Cornell University.

2. The Risley Dining Program, which is primarily for students of the Arts College, is open to all. Information is available at 217 Day Hall.

The Department of Dining Services honors the Cornellcard, a credit card for those who do not wish to pay cash for each meal. The Cornellcard plan is administered by the Bursar's Office. Information is available from the Bursar's Office, 260 Day Hall, Cornell University.

Conduct of Students

A Cornell student is expected to conduct himself 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 implemented by a student Judiciary Administrative Board granted initial jurisdiction for student conduct by the Faculty Committee on Student Conduct. A student may at any time be removed from the University by the faculty.

In the Veterinary College a 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 registration, and it is the student's duty to familiarize himself with the contents of the Code and observe them during his four years in the Veterinary 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 Advisors. All academic actions are voted by the Veterinary College Faculty. A student may appeal to the Faculty through the Dean or the Secretary of the College.

Careers for Veterinarians

The function of the Veterinary College 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 diseases of animals. 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 his service for all species of animals. There is a trend toward restricted practice in which the veterinarian limits his 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 Corporations

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.

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 our 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.

Almost every agricultural college has a veterinary science department. Some of these employ five or six veterinarians as research workers and teachers. The veterinary colleges of the country have staffs of veterinarians working in a number of specialized disciplines. Teaching opportunities are numerous in every field of veterinary education.

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 or animal origin.

Legal Requirements

Before one can practice veterinary medicine in the United States he must obtain a license from the state or states in which he locates his practice. This license generally is issued by the Department of Education or the Department of Agriculture on the basis of an examination set by a veterinary licensing board. Some states issue licenses without examination, by 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 thirty days before the scheduled date and must be accompanied by a fee of \$40.

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. 8-9), must successfully complete the courses named in the curriculum below, must have paid all fees due, and must have spent at least one year in residence.

The work of the College is arranged to begin in September and to close in May. The academic year is divided into two terms.

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

The Curriculum

The College has adopted a core-elective curriculum beginning in the year 1973-74. 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>Credit Hours</i>
<i>Fall Term</i>	
500 Gross Anatomy	5
502 Developmental and Microscopic Anatomy	3
525 Vertebrate Biochemistry	4
569 Veterinary Medical Orientation	2
	<hr/> 14
<i>Spring Term</i>	
501 Gross Anatomy	5
503 Microscopic Anatomy	3
504 Neuroanatomy	2
526 Physiology	4
570 Veterinary Medical Orientation	1
	<hr/> 15

Second Year

<i>Fall Term</i>	
515 Veterinary Immunology	2
516 Veterinary Bacteriology	2
527 Physiology	4
535 General Pathology	4
537 Basic Parasitology	2
538 Applied Parasitology	2
560 Clinical Methods	2
	<hr/> 18
<i>Spring Term</i>	
517 Veterinary Virology	2
518 Veterinary Mycology and Protozoology	1
519 Epidemiology and Infectious Diseases	4
528 Pharmacology, Toxicology, and Anesthesiology	4
536 Special Pathology	4
550 Veterinary Nuclear Medicine	1
555 Avian Diseases	2
561 Obstetrics and Reproductive Diseases	3
	<hr/> 21

Third Year

<i>Fall Term</i>	
505 Applied Anatomy	1
529 Clinical Pharmacology	2
539 Introduction to Laboratory Animal Medicine	1
562 Obstetrics and Reproductive Diseases	3
563 Large Animal Medicine	4
571 Clinical Pathology	3
583 Small Animal Medicine	4
587 General Surgery	3
	<hr/> 21

21 Requirements for Graduation

Spring Term

506 Applied Anatomy	1
564 Large Animal Medicine	4
565 Large Animal Surgery	4
566 Radiology	2
584 Small Animal Medicine	4
585 Small Animal Surgery	3
586 Small Animal Surgical Exercises	1
	—
	19

Spring Term

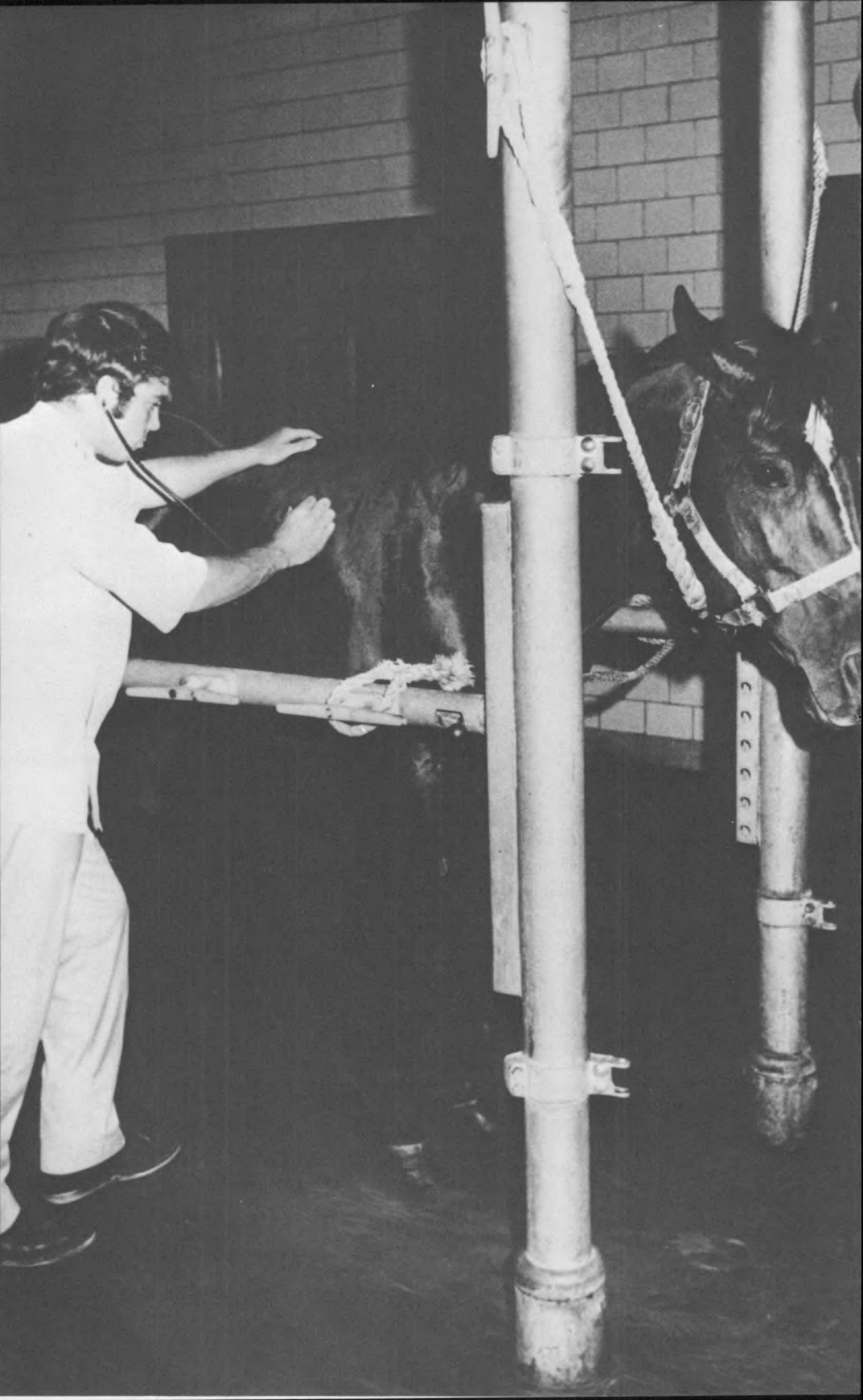
567 Clinical Nutrition	2
568 Jurisprudence, Ethics, and Business Methods	1
572 Senior Seminar	Req. 3
574 Large Animal Clinic	3
576 Ambulatory Clinic	3
578 Ancillary Clinics	3
590 Small Animal Medical Clinic	3
592 Small Animal Surgical Clinic	3
	—
	18

Fourth Year

Fall Term

520 Applied Microbiology and Preventive Medicine	3
572 Senior Seminar	Req. 3
573 Large Animal Clinic	3
575 Ambulatory Clinic	3
577 Ancillary Clinics	3
588 Ophthalmology	1
589 Small Animal Medical Clinic	3
591 Small Animal Surgical Clinic	3
	—
	19

Credit Hours



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 by consulting the appropriate *Announcement*. (See list of *Announcements* p. 48.)

Anatomy

Professors R. E. Habel, A. de Lahunta, H. E. Evans, W. O. Sack, Associate Professor J. F. Cummings; Assistant D. G. Doyle.

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. de Lahunta, and D. G. Doyle. 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 a dissection of the parakeet and chicken, 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, and techniques.

501 Gross Anatomy. First year, spring term. Credit five hours. Prerequisite: Anatomy 500.

Lecture, Th 8. Laboratory, M T Th 2:05–4:25, W 10:10–12:35. W. O. Sack.

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, plus completion of or concurrent registration in Veterinary Anatomy 500 or 700. A limited number of nonveterinary students will be admitted by permission of the instructor.

Lecture, M 8. Laboratory, W 10:10–12:35, Th 2:05–4:25. A. de Lahunta, J. F. Cummings, and D. G. Doyle.

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:

Veterinary Anatomy 502, plus completion of or concurrent registration in Veterinary Anatomy 501 or 700. A limited number of nonveterinary students will be admitted by permission of the instructor. Lecture, T 9:05. Laboratory, T F 10:10–12:35. J. F. Cummings and D. G. Doyle. 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. de Lahunta.

The nervous system of domestic animals is studied by functional systems. Clinical cases

with pertinent lesions are demonstrated with each system.

505-506 Applied Anatomy. Third year, fall term. Credit one hour. Laboratory, M 10:10-12:35 or T 10:10-12:35. R. E. Habel. Third year, spring term. Credit one hour. Laboratory, M 2:05-4:25 or W 2:05-4:25 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 post-mortem 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 or spring term. By permission of instructor only. Hours to be arranged.

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

602 Advanced Clinical Neurology. Spring term. Credit one hour. Prerequisite: First three semesters of veterinary curriculum. W 8. A. de Lahunta.

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. Fall term. Credit three hours. Prerequisite: Zoology or biology. Laboratory, W F 2:05-5. H. E. Evans. Designed for graduate students in Animal Science, Biological Science, Nutrition, and Conservation. 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 fetal and adult cow. Other species of interest to the class can also be presented.

701 Comparative Anatomy of the Digestive System. Fall term. Credit one hour. Prerequisite: Veterinary or Comparative Anatomy or Vertebrate Morphology 700. 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 A. F. Sellers, A. L. Aronson, E. N. Bergman, A. Dobson, T. R. Houpt, C. E. Stevens, J. F. Wootton; Associate Professor W. J. Arion; Assistant Professor W. S. Schwark; Assistants L. Ballas, R. P. Brockman, W. E. Semafuko.

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 431 or an equivalent course in general biochemistry; training in quantitative analysis is recommended. Lectures M W F 9:05; Discussions Th 9:05; Laboratories (alternate weeks) M T 2:05-4:25. J. F. Wootton, W. J. Arion, and assistants. An intermediate level biochemistry course emphasizing structure-function relationships and metabolic control in vertebrate systems.

526 Physiology for Veterinary Students. First year, spring term. Credit four hours. Prerequisite: Physiology 525, Anatomy 500 and 501, or Anatomy 700 or Zoology 311 and Biochemistry 433. Lecture M W F 9:05. Laboratory, Th 9:05-12:35, T. R. Houpt and assistants.

527 Physiology for Veterinary Students. Second year, fall term. Credit four hours. Prerequisite: Physiology 526. Lecture T 1:05, Th 8, F 9:05. Laboratory W 9:05-12:35. E. N. Bergman and A. F. Sellers.

528 Principles of Pharmacology, Toxicology, and Anesthesiology. Second year, spring term. Credit four hours. Prerequisite: Anatomy 500, 501, 502, 503, 504; Physiology 525, 526, 527; Pathology 535 or consent of the instructors. Lectures, M W 9:05. Laboratory, T 1:05-4:25. A. L. Aronson, W. S. Schwark. Factors governing the physiological disposition of drugs will be emphasized together with a consideration of the action of drugs affecting the nervous system. General principles of chemotherapy and of toxicology will also be covered.

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 and W. S. Schwark. Given in conjunction with Medicine, 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.

625 Vertebrate Biochemistry Lectures. Fall term. Credit three hours. M W F 9:05. Prerequisite: Biological Sciences 431 or an equivalent course in general biochemistry. Offered for advanced undergraduate and graduate students. J. F. Wootton and W. J. Arion.

626 Veterinary Animal Behavior. Spring term for first or second year students. Credit two hours. W 8, 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 Veterinary Medicine 527 or equivalent and consent of instructor. Enrollment limited, preregistration essential. Two lectures and one six-hour laboratory a week; times to be arranged. A. Dobson. 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; hours to be arranged. Prerequisites: Courses in general mammalian physiology, biochemistry, and nutrition, and consent of instructor. C. E. Stevens, A. Dobson, H. F. Hintz, L. P. Krook, A. F. Sellers, W. J. Visek, and 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 this system, and (3) digestive tract diseases.

724 Physiologic Disposition of Drugs and Poisons. Spring term. Offered in 1974. Credit two hours. Prerequisites: a course in biochemistry and consent of the instructor. M W 9:05. A. L. Aronson and W. S. Schwark. Factors governing the physiological disposition of drugs will be emphasized together with a

consideration of the action of drugs affecting the nervous system. General principles of chemotherapy and of toxicology will also be covered.

726 Physiology. Spring term. Credit three hours. For graduate students. Prerequisites: Physiology 525, Anatomy 500 and 501, or Anatomy 700 or Zoology 311, and Biochemistry 433. M W F 9:05. T. R. Houpt and assistants. 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. T 1:05, Th 8, F 9:05. E. N. Bergman and A. F. Sellers. Lectures and demonstrations on circulation, digestion, endocrine organs, metabolism, and reproduction.

Physical Biology

Professors C. L. Comar, E. L. Gasteiger, F. W. Lengemann, D. N. Tapper, R. H. Wassermann; Associate Professors A. P. Casarett, L. L. Nangeroni, J. C. Thompson, Jr., F. A. Kallfelz; Senior Research Associates R. A. Corradino, F. L. Hiltz, H. Moraff, A. N. Taylor, R. A. Wentworth; Graduate Assistants L. Lippiello, J. Molt, C. Sagan.

The Department is well equipped for advanced work in the applications of radiation and physical methods to problems of animals and biological research.

345 Elementary Animal Physiology. Spring term. Credit three hours. Prerequisite: one year of biology or zoology and college courses in chemistry. M W F 10:10. L. L. Nangeroni. Lectures and demonstrations arranged especially for students of agriculture but open to others; intended for students who do not plan to continue in physiology or allied fields.

346 Introductory Animal Physiology. Spring term. Credit three hours. Prerequisite: one year of biology and zoology, college courses in chemistry, and basic college mathematics. M W F 11:15. D. N. Tapper and others. Special attention will be given to the identity and functions of the organ systems of mammals, ruminant, and nonruminant, with general comparisons to other forms. Particular emphasis will be given to circulation, respiration, digestion, excretion, metabolism, and endocrine controls. The lectures, demonstrations, and exercises are intended to serve as a basis for subsequent work in the physiological sciences.

347 Introductory Physical Biology. Fall term. Credit three hours. Prerequisite: basic biology, chemistry, and calculus or permission of the

instructor. M W F 10:10. C. L. Comar and R. H. Wasserman.

A basic treatment of the application of physical principles to physiological problems. Coverage includes: mathematical approach to physiological problems; principles of tracers; kinetics; systems analysis and control theory; physico-chemical principles; flow of energy in living systems; flow of mass in living systems; contractility.

550 Applied Radiation Biology and Veterinary Nuclear Medicine. Second year, spring term. Credit one hour. M 8. A. P. Casarett and F. A. Kalbfelz.

Lectures and demonstrations on the nature of radiation, biological effects, veterinary applications, and monitoring procedures.

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

651 Introductory Biostatistics. Spring term. For first- or second-year veterinary students who have interest in broadening their capabilities through small research projects, students who wish to enter the field of public health where an understanding of data collection, analyses and interpretation is essential, and for students who intend to work in research orientated fields. Credit two hours. W 8, F 2:05-4:25. J. C. Thompson, Jr.

A basic course in the application of statistical techniques to biological studies and experimentation. Emphasis will be directed toward an understanding and application of various basic statistical tests and procedures. The range will be from simple aggregation procedures and measures of dispersion to the use of various experimental design techniques for controlled experiments. Special attention will be directed toward small sample theory and analysis because of their needs for animal experiments.

652 Neurophysiology. Second year, spring term. Credit one hour. F 2:05-4:25. E. L. Gasteiger. Lecture-demonstration of classical and current neurophysiological preparations including living nerve-muscle preparation, compound action potential, acoustic microphonic or other sensory system, cortical evoked potentials, spontaneous cortical potentials, the motor cortex, decerebrate rigidity, and behavioral phenomena such as classical and operant conditioning.

750 Radioisotopes in Biological Research Principles and Practice. Spring term. Credit four hours. Prerequisites: a course in quantitative chemistry and permission of the instructor. Lectures, T Th 11:05. Laboratory, M T or W 1:30-5. F. W. Lengemann and staff.

Lectures, demonstrations, and laboratory on the fundamentals of atomic energy procedures and applications to biological research.

751 Biological Effects of Radiation. Fall term. Credit three hours. T Th 10:10. Laboratory, Th 1:30-4:25. A. P. Casarett. Lectures and demonstration on radiation physics, radiation chemistry, radiation effects at the cellular level, radiation effects in multicellular organisms, genetic effects of radiation, and radioprotective and radiomimetic substances.

752 Biological Membranes and Nutrient Transfer. Spring term. Offered in alternate years. Credit two hours. Prerequisites: animal or plant physiology, quantitative and organic chemistry, physics, and consent of the instructor. Cellular physiology and elementary physical chemistry desirable. Lectures (time to be designated). 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.

753 Functional Organization of the Mammalian Nervous System. Fall term. Credit six hours. Offered in alternate years. Not offered in 1973-74. Prerequisite: two years of biological science. Courses in biochemistry, physics, and neural anatomy are desirable. Lectures, M W F 10:10. Laboratory, W 1:25. E. L. Gasteiger. Cellular, sensory, central integrative, and motor aspects of the nervous system will be considered with an emphasis on the electrophysiological approach. Laboratory studies will include electrical activity of cells, reflexes, decerebrate rigidity, acoustic microphonic response, subcortical stimulation, and evoked and spontaneous cortical activity.

754 Special Topics in Mineralized Tissue. Fall term. Credit two hours. Prerequisites: animal physiology, biochemistry, and elements of physical biology, or the permission of the instructor. Anatomy and histology recommended. M F 11:15. C. L. Comar, R. A. Corradino, A. N. Taylor, and R. H. Wasserman. 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.

755 Physical Biology Graduate Seminar. Fall and spring terms. Credit one hour. C. L. Comar and staff.

756 Seminar—Special Topics in Physical and Radiation Biology. Fall and spring terms. Credit hours variable. A. P. Casaretti.

757 Experimental Physiology for Graduate Students. Fall term. Credit three hours. Prerequisites: 525, 500, and 501 or 700, or Biological Sciences 321–322 and Biochemistry 401. Consent of the instructor is required. Registration limited. L. L. Nangeroni.

Pathology

Professors L. P. Krook, C. G. Rickard, J. H. Whitlock, C. I. Boyer, Jr., F. M. Noronha, J. R. Georgi, L. Coggins; Associate Professors J. E. Post, J. M. King, J. N. Shively; Adjunct Professor K. E. Wolf, Adjunct Assistant Professor G. V. Lesser; Senior Research Associates C. L. Gries, F. E. Waterman, E. Dougherty, III, A. L. Britt, R. W. Dellers, M. J. Kemen, G. A. Maylin, J. Eisenstadter, B. F. Hiscock; Director of the Diagnostic Laboratory S. R. Nusbaum; Interns C. D. Buergeit, J. L. Inhelder; Graduate Students F. S. Hsu, P. Arjsongkoon, K. A. O. Sansi, R. M. Scarsi, T. Wongkhaloung.

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 general diagnostic laboratory, 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, and numerous serum samples for epidemiological work. Clinical cases which 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. Lecture, T Th 11:15. Laboratory, T 2:05–4:25. Prerequisite: one year of biology. J. H. Whitlock and J. R. Georgi.

A study of unrelated species living together in intimate physiological association. Parasitoses which 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.

535 General Pathology. Second year, fall term. Credit four hours. Prerequisite: Anatomy 502 and 503 or equivalent histology courses. In addition, it is desirable that the student shall have at least one year's work in anatomy and physiology. In special cases of students who are majoring in biology and expect to take no further work in pathology these prerequisites may be waived in part; when this is done, the course will not be accepted as a prerequisite for other courses. Lecture, T Th 9:05. Laboratory, Section I, T F 10:10–12:35; Section II, M Th 10:10–12:35. L. P. Krook. A study of disease processes, including congenital anomalies, circulatory diseases, degenerations, necrosis, inflammation, and neoplastic diseases (tumors). The gross and microscopic features are discussed in relation to the effects on the host animal.

536 Special Pathology. Second year, spring term. Credit four hours. Prerequisite: 535. Lecture, T Th 9:05. Laboratory, T Th 10:10–12:35. J. M. King. A systematic study of the diseases in each organ system, with emphasis on differential diagnostic features. Veterinary pathologists who are specialists in several aspects of the course participate in teaching the areas of their specialization.

537 Basic Parasitology. Second year, fall term, 1973. Credit two hours. Prerequisite: zoology or biology. Lecture, M 8. Laboratory, Section I, M 10:10–12:35; Section II, T 10:10–12:35. After 1973 this course will be combined with Applied Parasitology to constitute a four-credit-hour course in veterinary parasitology taught to second-year students in the fall term. J. R. Georgi. A systematic study of the helminth and arthropod parasites of domestic animals with particular emphasis on the identification and bionomics of the forms of veterinary importance.

538 Applied Parasitology. Second and third year, fall term, 1973. Credit two hours. Prerequisite: 537 or equivalent. Lecture to second- and third-year classes T at 8. Laboratory for second year class, Section I, Th 10:10–12:35; Section II, F 10:10–12:35. Laboratory for third year class, Section I, Th 2:05–4:25; Section II, F 2:05–4:25. After 1973 this course will be combined with Basic Parasitology to constitute a four-credit-hour course in veterinary parasitology to be taught to second year students in the fall term. J. R. Georgi. An organized study of the parasitisms of

domestic animals with particular emphasis on the features of diagnostic importance. Special attention will be given to the laboratory and post-mortem techniques that are of value in applied parasitology.

539 Introduction to Laboratory Animal Medicine.

Third year, fall term. Credit one hour. Prerequisites: 535 and 536. Lecture, Th 11:15. C. I. Boyer, Jr. and staff.

An introduction to management and disease control in the common laboratory animal species used in biological research including mice, rats, guinea pigs, hamsters, rabbits, poultry, and nonhuman primates. Disease control in experimental colonies of dogs and cats is discussed. Provides a survey of preventive medicine and the common diseases.

571 Clinical Pathology. J. Bentinck-Smith and J. B. Tasker. See Clinical Courses, course 571.

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

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

Gross and microscopic pathology of spontaneous and some experimental diseases of fish. Normal anatomy and histology is reviewed as an introduction. The ecology of fish is discussed as it relates to the diseases. Lectures, color projection slides, fresh specimens, and histologic slides used to illustrate and describe fish pathology.

735 Pathology Seminar. Fall and spring terms. No credit. Required of all graduate students in pathology. Undergraduate students are admitted.

736 Pathology of Nutritional Diseases.

Spring term. Credit three hours. Primarily for graduate students of nutrition, and as elective course for veterinary students at sophomore or above level. Prerequisite: 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: 537. J. H. Whitlock and J. R. Georgi. Special problems concerned with the parasites of domestic animals.

738 Laboratory Methods of Diagnosis.

Fall or spring term. Credit one to three hours, by arrangement. Graduate students. Prerequisite: 536 and 515 or 315.

Instructions and practice in the application of pathological methods for the diagnosis of disease.

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.

740 Reproductive Pathology.

Fall term. Credit two hours. Lecture and laboratory. Prerequisite: 535 and 536. Hours to be arranged. K. McEntee.

741 Advanced Work in Laboratory Animal Medicine.

Spring term starting in 1975. Credit two hours, by arrangement. For graduate and advanced undergraduate students. Prerequisite: permission of instructor. C. I. Boyer, Jr. and staff.

Preventive medicine and the diagnosis and pathology of spontaneous diseases of laboratory animals will be emphasized. Discussions and exercises in the use of gnotobiotic and specific-pathogen-free animals for research purposes. Visits will be made to acquaint the students with the design of various types of experimental animal facilities.

742 Ultrastructural Pathology.

Fall term. Credit two hours. Prerequisite: biology courses at the advanced undergraduate or graduate level are required, and courses 535, 536 are recommended. Two lectures per week, supplemented by demonstrations. J. N. Shively. Study is directed toward development of capability in interpretation of electron micrographs of biological structures in health and disease. Techniques of electron microscopy of biological material are briefly reviewed. The

major part of the course is directed toward alterations of specific organelles and sub-cellular systems in pathologic processes, such as inflammation, neoplasia, and the ultra-structural pathology of selected organ systems, e.g., kidney, blood vasculature, and liver.

743 Gastroenteric Pathology. Spring term. Credit one hour. Th 3. L. P. Krook. Necropsy Room. Demonstration and discussion of necropsies.

Microbiology

Professors J. H. Gillespie, G. C. Poppensiek, J. A. Baker, B. W. Calnek, L. E. Carmichael, L. Coggins, J. Fabricant, N. L. Norcross, B. E. Sheffy, A. J. Winter; Associate Professors M. J. G. Appel, S. G. Campbell, R. F. Kahrs, K. M. Lee, G. Lust, F. W. Scott; Assistant Professors R. D. Schultz, J. F. Timoney; Senior Research Associate C. G. Fabricant; Research Associate D. F. Holmes, J. T. Wang; Assistants C. A. Banta, D. A. Bemis, J. A. Carlson, D. H. Davies, J. M. Gaskin, L. W. George, D. A. Higgins, D. C. Mills.

Courses 515, 516, 517, 518, 519, and 520 are required in the core curriculum of the Veterinary College 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 of even-numbered years. Credit two hours. Prerequisite: a course in basic microbiology or special permission of the instructor. T Th 9:05. 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 Pathogenic Microbiology. Spring term of odd-numbered years. Credit four hours. Prerequisite: a course in basic microbiology and course 315 or special permission of the instructors. T Th 1:05-4:25. J. H. Gillespie and C. G. Fabricant. Includes microbiology, virology, and serology.

515 Veterinary Immunology. Second year, fall term. Credit two hours. Lecture M 1:05. Laboratory 2:05-4:25. S. G. Campbell. The object is to give the veterinary student a general outline of the mammalian and avian immune response. Emphasis will be on general principles using examples from domestic

animals, thereby stressing the application of immunology to veterinary medicine. The laboratories, demonstrations and discussions will illustrate concepts presented in the lectures and will allow the student to carry out serological tests commonly used in veterinary medicine.

516 Veterinary Bacteriology. Second year, fall term. Credit two hours. Lecture, W 1:05. Laboratory, 2:05-4:25. J. F. Timoney.

The concern is with the bacteria that are pathogenic to animals. Emphasis will be given to the properties and constituents of these bacteria which are relevant to their pathogenicity and the host-parasite interaction. Survival of the organism in the environment, modes of transmission, sensitivity to chemotherapeutic agents and disinfectants and the production and use of vaccines will also be included. The laboratory will emphasize the cultural and morphological features of the bacteria discussed in lecture. Isolation and identification procedures will be taught 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, M 1:05. Laboratory, 2:05-4:25. J. A. Baker and L. E. Carmichael.

The lecture portion will be discussion of the biology of animal viruses at an elementary level, stressing topics of general significance. The lectures will be amplified by laboratory demonstrations.

518 Veterinary Mycology and Protozoology.

Second year, spring term. Credit one hour. W 10:10-12:35. J. F. Timoney.

The fungi, mycoplasma and protozoa which are pathogenic for domestic animals will be discussed. Certain saprophytic fungi commonly occurring on the skin of animals, and the protozoa of rumen contents will also 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 demonstrations in clinical specimens.

519 Epidemiology and Infectious Diseases.

Second year, spring term. Credit four hours. 2nd and 3rd year, W Th F 1:05-1:55; 2nd year discussion, M 10:10-12:35; 3rd year discussion, W 10:10-12:35. R. F. Kahrs and 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 Applied Microbiology and Preventive Medicine.

Fourth year, spring term beginning in 1975. Credit three hours. M T Th 8 a.m. R. F. Kahrs and D. F. Holmes.

A continuation of course 519. Stress will be on the application of fundamental concepts of microbiology and immunology to animal disease diagnosis, surveillance and control including development, evaluation and use of biologics. Emphasis will be on the influence exerted by veterinarians in preventing diseases transmissible by agricultural products. The relationship of the practicing veterinarian to disease control agencies and the responsibility of individual veterinarians in maintenance of human health and environmental quality will be stressed.

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

606 Small Animal Infectious Diseases.

Fall term. Credit two hours. Prerequisite: two years of the Veterinary College Curriculum or permission of the instructor. W 1:05. 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.

705 Advanced Immunology Lectures.

Spring term of even-numbered years. Credit three hours. Prerequisite: an elementary immunology course or permission of the instructors. W 8-9, W 2-3, F 2-3. N. L. Norcross, A. J. Winter, S. G. Campbell, J. R. Duncan, R. D. Schultz, and invited speakers.

The lectures are designed to cover the field of immunology at an advanced level. Lecture topics include phylogeny and ontogeny, antigens, immunoglobulins, antibody synthesis, hypersensitivity, antigen-antibody reactions and protective immunity. Detailed course outlines available from course secretary.

706 Advanced Immunology Laboratory.

Spring term of even-numbered years. Credit three hours. Prerequisite: permission of the instructors. T Th 1:30. N. L. Norcross, A. J. Winter, S. G. Campbell, J. R. Duncan and R. D. Schultz.

In three major parts: (1) a comprehensive

exercise in antibody production and analysis, (2) a series of individual exercises in modern immunological techniques, and (3) demonstrations of immunological instrumentation and technics. Detailed course outlines are available from the course secretary.

707 Advanced Work in Bacteriology, Virology, or Immunology.

Fall term. Credit one to three hours, by arrangement. Spring term. Credit one to three hours, by arrangement. Properly prepared students may undertake special problems or receive special assignments.

708 Advanced Animal Virology Lectures.

Spring term of odd years. Two or three credit hours. Three hours for two lectures and one seminar-discussion section. Two credit hours for lecture portion. Courses 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 and 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 and staff.

Principals of animal virology 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 course secretary.

709 Advanced Animal Virology Laboratory.

Spring term of odd years. Credit two hours. Prerequisite: permission of instructor. W 1:10 (additional time to be designated). The class size will be limited to sixteen students. K. M. Lee and staff.

Discussions and laboratory exercises covering: preparation of cell cultures, concentration and purification of virions, analyses of viral proteins and nucleic acids, virus assays and serology, and cell transformation.

710 Microbiology Seminar.

Fall and spring terms. No credit. Required of all graduate students in Microbiology. Time to be arranged. K. M. Lee.

711 Laboratory Methods of Diagnosis.

Fall term. Credit one to three hours, by arrangement. Spring term. 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 Immunopathology and Clinical Immunology. Fall term of 1974. Credit three hours: one and one half hours for lecture and one and one half hours for laboratory. Prerequisites: Introductory Immunology (Courses 315 or 515) and Special Pathology (Courses 535 and 536) or permission of the instructors. J. R. Duncan and R. D. Schultz. Presentation of current immunologic techniques and immunopathological 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. A term project and report are required.

Avian Diseases

Professors S. B. Hitchner, J. Fabricant, M. C. Peckham, B. W. Calnek; Associate Professor L. Leibovitz; Research Specialists B. S. Cowen, J. I. Price; Directors of Laboratory W. F. Dean, W. D. Urban; Field Veterinarian T. S. Sandhu.

The department maintains a poultry disease diagnostic clinic at the college and two regional diagnostic laboratories in different parts of the state. These laboratories supply fresh material for teaching and research purposes. Adequate facilities existing at the college and at 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 years. Credit two hours. Prerequisites: Biological Sciences 290 or 290A, and permission of the instructor. Lecture and Laboratory. Th 2:05-4:25.

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. J. Fabricant.

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.

670 Special Problems in Avian Diseases. Fall or spring term. By special arrangement with the instructor. Hours to be arranged.

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

Small Animal Medicine and Surgery

Professor R. W. Kirk; Associate Professors S. I. Bistner, R. Dueland, R. E. Hoffer; Assistant Professors G. R. Bolton, E. J. Trotter; Instructor D. W. Scott; Resident R. C. Riis; Interns J. W. Alexander, R. E. Barrett, C. E. Greene, and D. M. MacCoy.

Instruction consists of lectures, recitations, and laboratory work. The Small Animal Clinic furnishes abundant material for instruction in applied surgical and medical therapeutics of animals. The clinic is run like a small animal practice. Students are assigned to the cases, assist in operations, and, under close supervision, have charge of the patients.

583 Small Animal Medicine. Third year, fall term. Credit four hours. M W Th 8, F 11:15. R. W. Kirk, G. R. Bolton and D. W. Scott.

584 Small Animal Medicine. Third year, spring term. Credit four hours. Prerequisites: Special Pathology, Pharmacology, and Clinical Pathology. M T Th F 11:15. R. W. Kirk, S. I. Bistner, G. R. Bolton, and D. W. Scott.

585 Small Animal Surgery. Third year, spring term. Credit three hours. Prerequisite: Special Pathology. M T W 8. R. E. Hoffer, R. Dueland, and E. J. Trotter.

586 Small Animal Surgical Exercises. Third year, spring term. Credit one hour. M T W or F 2:05-4:25. R. E. Hoffer, R. Dueland, and E. J. Trotter.

587 General Surgery. Third year, fall term. Credit three hours. Prerequisite: Special Pathology. M 1:05; T 3:05; W 10:10. J. T. Vaughan, D. D. Delahanty, R. E. Hoffer, R. Dueland, and staff.

588 Small Animal Ophthalmology. Fourth year, fall term. Credit one hour. W 9:05. S. I. Bistner.

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.

788 Advanced Work. Fall and spring terms respectively. Five or more hours a week throughout the term. Hours to be arranged. By permission of instructor only. R. W. Kirk, S. I. Bistner, R. Dueland, R. E. Hoffer, and G. R. Bolton. Research in medicine and surgery of small animals.

Large Animal Medicine, Obstetrics, and Surgery

Professors F. H. Fox, K. McEntee, J. T. Vaughan, D. D. Delahanty, A. J. Winter, J. C. Geary, J. B. Tasker, J. Bentinck-Smith, N. L. Norcross, B. C. Tennant, W. J. Roenigk, J. M. Kingsbury; Associate Professors H. F. Schryver, N. B. Haynes, J. E. Lowe, D. S. Postle, R. F. Kahrs, C. E. Hall, F. A. Kallfelz, H. F. Hintz; Visiting Assistant Professor S. M. Olson; Assistant Professors R. H. Whitlock, R. K. Braun, J. R. Duncan; Senior Clinician R. B. Hillman; Senior Research Associate H. O. Dunn; Research Associate K. Burda; Surgical Residents E. L. Reinertson, J. E. Johnson; Medical Interns M. C. Smith, D. D. Hamilton, M. D. McCoy; Surgical Interns L. E. Dequine, G. R. Schmidt; Supervising Veterinarian W. Linquist; Farrier H. G. Mowers; X-ray Lecturer G. D. Ryan.

Classroom Work in Large Animal Medicine

The course in veterinary large animal medicine principles and practice extends over the last two years of undergraduate study. The subjects of the second year are distinct from, and complementary to, those of the first. It includes the constitutional, dietetic, and toxic affections and the noninfectious maladies of the different systems of organs—digestive, respiratory, circulatory, urinary, cutaneous, reproductive, and visual—of the various genera of domestic animals. It also includes a study of the clinical phases of infectious and parasitic diseases, the disturbances of metabolism, and therapeutics of large animals.

Proximity to a large agricultural college and to a well-stocked farming community tends to offer a greater variety of patients than can be had in a large city remote from country flocks and herds. Students take charge of unusual cases in the hospital and many routine cases in the ambulatory clinic. Complete daily records are prepared by the students on all of the most instructive cases. The course also includes instruction in diagnosis. Through the medium of laboratory work students are expected to acquire a methodical system of examination by repeated systematic observations on both normal and diseased animals. The work involves the use of various special diagnostic methods taught in our own and other laboratories of the College, such as examination of the blood, milk, urine, and feces, the application of serodiagnostic methods, and others.

Ambulatory Clinic

An ambulatory or out-clinic is conducted for the purpose of giving instruction to students under conditions identical with those encountered in private practice. Proper conveyances and

equipment are provided, and an opportunity is afforded for observing such diseased farm and dairy animals as cannot be entered in the clinics of the College. The student thereby not only has an opportunity to see cases not readily brought to the College clinic but also assists in handling cases in the same manner and under the same environment as are required of the country practitioner. As the vicinity of Ithaca is largely devoted to dairying, valuable clinical material relating to obstetrics and the diseases of dairy cows is available and is extensively used. In addition, the supervising veterinarian and field veterinarians associated with the New York State Mastitis Program are resident in Ithaca, and senior students are required to accompany and assist them on many field trips dealing with all phases of bovine mastitis, including a study of various methods of milking and housing dairy cattle. In the senior year, field trips are made to study and observe management practices on large horse, sheep, dairy cattle, and swine farms, and these are a required part of courses 561, 562, 563, and 564.

Classroom Work in Large Animal Surgery

Course 587 (General Surgery), course 535 (General Pathology), and course 565 (Large Animal Surgery) together constitute a group designed to impart a general knowledge of the principles of surgery, surgical pathology, therapeutics, and operative technique.

Laboratory Work in Surgery

The laboratory work includes surgical exercises and general surgery. In the course in large animal surgical exercises, the student is required to perform most of the important operations on horses, cattle, swine, and sheep. The animal is placed under general anesthesia, which is maintained until the close of the period, when the subject may be destroyed. Emphasis is placed on asepsis and antisepsis, arrest of hemorrhage, suturing, and dressing, so that while acquiring skill and knowledge of the appearance, resistance, and general character of living tissue, the student also forms proper habits in surgical procedure and survival surgery.

In the general surgery laboratory, most emphasis is placed upon the farm animals, but many basic principles may be adapted to all cases of animals. Subjects taught include restraint, various methods of administering medicines, suturing, bandaging, examination of teeth, examination of the feet, and complete examination for soundness.

Clinical Surgery of the Farm Animal

A hospital is maintained with facilities for the hospitalization of approximately sixty-seven

patients. There are two operating rooms equipped with operating tables, stocks, diagnostic and therapeutic x-ray equipment, and other equipment. There is also a farriery with a farrier in attendance. Fourth-year students are in the clinics for the entire day, Monday through Friday, also on Saturday and Sunday morning. Two classes of patients are admitted: special patients and clinic patients. Special patients are examined, diagnosed, and treated by the senior staff members. The students assist and observe. Clinic patients are examined, diagnosed, and treated by the residents and students. In the hospital, the student has an opportunity to see, examine, and treat many unusual cases that are referred to the College by practitioners. Furthermore, the student has an opportunity to study the progress of cases, which is often impossible when treating patients on the farm. The cooperation between the clinical staff and the laboratories provides the student an opportunity to study the patient critically and to correlate clinical with both physiological and pathological findings. Every possible opportunity is given to the student to participate in the examination and treatment of patients because the student will learn more from doing than from observing.

265 Horses. Spring term. Credit two hours. Prerequisite: 100 or permission to register. Lecture, Th 9:05. Morrison Hall 146. Laboratory, Th 1:25-4:25. Livestock Pavilion. S. W. Sabin, H. F. Hintz, and J. E. Lowe. Selection, management, feeding, breeding, training, and marketing of light horses.

365 Seminar on Horse Production. Spring term. Credit two hours. Prerequisite: 112, 220, 221, and 265, or equivalent. Enrollment limited to eighteen students. F 2-4:35. Morrison Hall 163. S. W. Sabin, H. F. Hintz and J. E. Lowe. Discussion of the management of various types of horse enterprises such as the breeding farm, training stable, and riding stable. One all-day field trip will be taken.

470 Health and Diseases of Animals. Spring term. Credit three hours. Not open to first-year students or to those who have had no course in animal husbandry. Lectures M W F 11:15. C. E. Hall. Diseases of domestic animals, chiefly those related to food and fibre production, are discussed generally and with specific examples or models. Causes, prevention and control, and importance to human health are emphasized.

560 Clinical Methods. Second year, fall term. Credit two hours. Lecture, M 9:05. Laboratory, T or Th 2:05-4:25. Third year, fall term. Lecture, M 9:05. Laboratory M W or F 2:05-4:25. Collaborating staff members from both the Large Animal Clinic and Small Animal Clinic present material dealing with restraint methods

and clinical techniques used in physical examinations for diagnosis and in 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 2:05, W 11:15. Laboratory, W or Th 2:05-4:25. S. M. Olson. Pregnancy diagnosis, diseases of the gestation period including teratology and abortion, parturition, dystocia, obstetrical operations, and postpartum diseases are presented.

562 Obstetrics and Reproductive Diseases. Third year, fall term. Credit three hours. Lectures, T 2:05, W 11:15. Laboratory, M or T 10:10-12:35. S. M. Olson. A presentation of applied physiology and endocrinology of the male and female reproduction tract; congenital, infectious, endocrine, and miscellaneous diseases of the genital organs causing infertility and sterility; and artificial insemination. Further clinical instruction in obstetrics and infertility is given in the ambulatory clinic and, in the third and fourth years, in the College dairy barn.

563 Large Animal Medicine. Third and fourth years, fall term. Credit four hours. Third year, T W Th F 9:05; fourth year, M T W Th 8. F. H. Fox.

564 Large Animal Medicine. Third and fourth years, spring term. Credit four hours. Third year, M T W Th 9:05; fourth year, M T W Th 8. F. H. Fox and R. B. Hillman. Lectures or recitations covering physical diagnosis, therapeutics, and some diseases of large animals. In addition to the instruction provided by the Departmental staff, J. M. Kingsbury gives lectures and field trips 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. D. D. Delahanty.

566 Radiology. Third year, spring term. Credit two hours. Th F 10:10. J. C. Geary and staff. Technique of operation with the use of modern equipment, X-ray protection, darkroom procedure, and fundamentals of diagnosis.

567 Clinical Nutrition. Fourth year, spring term. Credit two hours. Required of veterinary students. T Th 9:05. F. A. Kallfelz. Lectures and demonstrations reviewing basic principles of nutrition and covering nutritional disease problems of domestic animals, as well as the use of nutritional principles in the prevention and treatment of disease.

568 Jurisprudence, Ethics, and Business Methods. Fourth year, spring term. Credit one hour. W 9:05. N. B. Haynes and associates. Lectures on the principles of veterinary medical ethics; veterinary medical organization and various practiced topics related to veterinary practice management.

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.

678 Mechanics of Biological Material and Systems. Fall term for first, second, or third year students. Credit two hours. Prerequisite: Calculus and Physics or permission of the instructor. W 8; W 2:05-4:25. D. L. Bartel.

775 Advanced Work in Reproductive Pathology and Bacteriology, Medicine, Obstetrics, and Surgery. Fall or spring term. Open to graduate students. Hours and credit to be arranged. K. McEntee, F. H. Fox, D. D. Delahanty, A. J. Winter, H. F. Schryver, H. F. Hintz, S. M. Olson, and H. O. Dunn. Properly prepared students may undertake special problems or receive special assignments.

776 Urogenital Surgery of the Horse. Fall term. Credit two hours. Surgical diseases of the urogenital system of the mare and stallion. Fourteen lectures will be presented in seminar-discussion form. The anatomy laboratory is planned to utilize the prosected specimens and video-tape, in collaboration with the Anatomy Department. The surgical pathology laboratories will be taught with the help of Reproductive Pathology. The surgical laboratories will also utilize cadaver dissections.

777 Surgery of the Digestive System of the Horse. Spring term. Credit two hours. Surgical diseases of the digestive system including the oral cavity, pharynx and esophagus, and gastro-intestinal tract. Special consideration will be given to problems arising from diseased teeth and obstructive disease of the esophagus and intestine. Laparotomy techniques will be covered in depth. Fourteen lectures will be presented in seminar-discussion form. Laboratories will also take advantage of dissected specimens. Collaboration with the Anatomy Department and the Pathology Department will be utilized in both lecture and laboratory presentations.

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. Permission of instructor necessary. B. C. Tennant and others. The pathogenesis diagnosis and treatment of the major medical diseases of the gastrointestinal tract of domestic animals.

Reproductive Pathology. K. McEntee. See Department of Pathology, course 740.

Epidemiology and Infectious Diseases. R. F. Kahrs. See Department of Microbiology, course 519.

Special Lectures

During the year, lectures on special topics in medicine will be given by eminent practitioners and teachers of veterinary medicine. They will form a part of the instruction in this Department.

Opportunities for Research

The activities of the Department, aside from the instruction, are devoted to research in connection with diseases of cattle, including mastitis, the phenomena of sterility and abortion in animals of breeding age, diseases of newborn calves, equine nutrition in relation to bone and joint diseases, radiology, clinical pathology, and immunochemistry. Opportunity is afforded for participation in the investigations by graduate students having acceptable preparation.

The Clinical Courses

Professors J. Bentinck-Smith, D. D. Delahanty, J. Fabricant, F. H. Fox, J. C. Geary, S. B. Hitchner, R. W. Kirk, M. C. Peckham, G. G. Rickard, W. J. Roenigk, J. B. Tasker, B. C. Tennant, J. T. Vaughan; Associate Professors S. I. Bistner, R. Dueland, R. E. Hoffer, F. A. Kallfelz, J. M. King, J. E. Lowe, D. S. Postle; Assistant Professors G. R. Bolton, R. K. Braun, B. R. H. Farrow, S. M. Olson, E. J. Trotter, R. H. Whitlock; Senior Clinician R. B. Hillman; Instructor D. W. Scott; Residents J. E. Johnson, E. L. Reinertson, R. C. Riis; Interns J. W. Alexander, R. E. Barrett, L. E. Dequine, C. E. Greene, D. D. Hamilton, D. M. MacCoy, D. McCoy, G. R. Schmidt, M. C. Smith; Supervising Veterinarian W. Linquist.

The practical application of the student's basic knowledge of veterinary medicine to the clinical diagnosis and therapy of disease begins in the third year of his course. During that year he is required to take Clinical Orientation, which introduces him to clinical work largely as an

observer. His intensive training in clinical medicine and surgery begins in his fourth year; the greater part of which is devoted to actual handling of patients under close supervision of the clinical staff. The technical instruction is divided among four departments as follows.

The Ambulatory Clinic, Consulting Clinic, Radiological and Clinical Pathology are operated by the Department of Large Animal Medicine, Obstetrics and Surgery.

The Small Animal Clinic is operated by the Department of Small Animal Medicine and Surgery.

The Poultry Clinic is conducted by the Department of Avian Diseases.

The work in necropsies is conducted by the Department of Pathology.

Information about the respective Clinical divisions will be found under the course announcements of the departments concerned. Only students who have completed the first two years of the veterinary curriculum will be admitted to any one of the clinical courses.

Students must complete all prescribed clinical courses satisfactorily to be eligible for graduation.

569 Veterinary Medical Orientation. First year, fall term. Credit two hours. T 8, Th 1:05.

570 Veterinary Medical Orientation. First year, spring term. Credit one hour. M 8.

571 Clinical Pathology. Third year, fall term. Credit three hours. Prerequisite: course 536 in the Department of Pathology, taken previously or concurrently. Students from other Colleges may be admitted by special permission without this prerequisite. T F 1:05. J. Bentinck-Smith and J. B. Tasker.

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; the study of pathological alterations in clinical cases.

572 Senior Seminar. Fourth year, fall and spring terms. F 8-8:50. J. E. Lowe in charge. Fourth year class members are required to attend these conferences. First, second and third year class members are invited to attend. Staff members representing all disciplines are also invited to attend.

Students will be required to present reports on their studies of selected cases from the clinics, and these will be criticized and discussed by the students and faculty members. In this way special knowledge and viewpoints of the anatomist, biochemist, physiologist, pathologist, bacteriologist, and parasitologist, as well as those of the clinicians, will be brought to bear on problems of diagnosis and therapy.

573 Large Animal Clinic. Fourth year, fall term. Credit three hours.

574 Large Animal Clinic. Fourth year, spring term. Credit three hours.

575 Ambulatory Clinic. Fourth year, fall term. Credit three hours.

576 Ambulatory Clinic. Fourth year, spring term. Credit three hours.

577 Ancillary Clinics. Fourth year, fall term. Credit three hours.

578 Ancillary Clinics. Fourth year, spring term. Credit three hours.

589 Small Animal Medical Clinic. Fourth year, fall term. Credit three hours.

590 Small Animal Medical Clinic. Fourth year, spring term. Credit three hours.

591 Small Animal Surgical Clinic. Fourth year, fall term. Credit three hours.

592 Small Animal Surgical Clinic. Fourth year, spring term. Credit three hours.

These clinics operate daily by assignment, including nights and Sundays when necessary. J. T. Vaughan, F. H. Fox, J. Bentinck-Smith, and R. W. Kirk.

780 Veterinary Research Methods. Spring term. Credit two hours, by arrangement. A combined lecture, laboratory, seminar in experimental design, statistical analysis, and statistical inferences. Summarization and publication of research data to be discussed. H. O. Dunn

During his fourth and final year the veterinary student is required to spend his time, after 9:00 a.m. daily, studying and ministering to the ailments of patients. He is on call, night and day, during the entire year. For this reason he is not permitted to carry extra academic courses, and outside part-time employment is not accepted as a valid excuse for failure to meet his full responsibilities in these courses.

Under a plan of rotation, students are required to work in groups in the four clinics so that they may acquire a varied experience. Work in one of the clinics may not be substituted for that in any of the others.

Work in necropsies will be supervised by the Department of Pathology. As a part of their ancillary clinical duties, students will be required to carry out, under the supervision of the clinical pathologist, such laboratory procedures as are indicated. Students in ancillary clinics are assigned to necropsy duty under the supervision of a pathologist, and the results of each necropsy are reported to the clinic group responsible for the case.



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- Danks, A. Gordon, B.S., D.V.M., Veterinary Surgery

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- Fincher, Myron G., D.V.M., M.S., Veterinary Medicine
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- Evans, Howard E., B.S., Ph.D., Veterinary Anatomy
- Fabricant, Julius, B.S., V.M.D., M.S., Ph.D., Avian Diseases
- Fox, Francis H., D.V.M., Veterinary Medicine, Obstetrics; Director of the Ambulatory Clinic; Chairman of the Department of Large Animal Medicine, Obstetrics, and Surgery
- Gasteiger, E. L., Jr., A.B., M.S., Ph.D., Physical Biology; Joint Appointee to the Section of Neurobiology & Behavior, Division of Biological Sciences
- Geary, Jack C., D.V.M., Radiology; Director of Radiology in the Department of Large Animal Medicine, Obstetrics, and Surgery
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Laboratory
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- Postle, Donald S., D.V.M., M.S., Veterinary
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- Schryver, Herbert F., B.A., D.V.M., Ph.D.,
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- Scott, Fredric W., B.S., D.V.M., Ph.D.,
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Schwark, Wayne S., D.V.M., M.Sc., Ph.D.,
Veterinary Pharmacology
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., Anesthesiol-
ogy and Small Animal Surgery
Whitlock, Robert H., D.V.M., Ph.D., Large Animal
Medicine, Obstetrics, and Surgery

Senior Research Associates

Britt, Alfred L., D.V.M., M.P.H., Ph.D., Veterinary
Pathology
Corradino, Robert A., B.S., M.S., Ph.D.,
Physical Biology
Dellers, Robert W., D.V.M., Ph.D., Veterinary
Pathology
Dougherty, Ellsworth III, B.S., V.M.D., M.S.,
Ph.D., Veterinary Pathology
Dunn, Henry O., B.S., M.S., Ph.D., Large Animal
Medicine, Obstetrics, and Surgery
Eisenstadter, Joseph, Ph.D., Veterinary Pathology
Fabricant, Catherine G., B.S., M.A., Veterinary
Microbiology
Gries, Christian L., D.V.M., Ph.D., Veterinary
Pathology
Hillman, Robert B., A.B., D.V.M., M.S., Large
Animal Medicine, Obstetrics, and Surgery
Hiltz, Frederick L., B.S.E.E., M.S.E.E., Ph.D.,
Physical Biology
Hiscock, Bruce F., B.S., Ph.D., Veterinary
Pathology
Kemen, Mathias J., Jr., D.V.M., M.S., Veterinary
Pathology
Moraff, Howard, A.B., B.S., M.S., Ph.D.,
Physical Biology
Taylor, Alan N., A.A.S., B.S., M.S., Ph.D.,
Physical Biology
Waterman, Fausto E., D.V.M., Veterinary
Pathology
Wentworth, Richard A., B.S., M.S., Ph.D.,
Physical Biology

Staff

Professional Service—Laboratories

Angstrom, Clement I., D.V.M., Director of
Laboratory, Avian Disease Program (Kingston)
Dean, William F., B.S.A., M.S., Ph.D., Director
of Duck Research Laboratory (Eastport)
Fritz, Albert C., D.V.M., Field Veterinarian,
Mastitis Program (Kingston)
Gilmartin, John E., B.S., Assistant Director of
Laboratory Animal Medicine
Hayes, Gerald L., D.V.M., Field Veterinarian
(Earlville)
Linguist, Wesley, D.V.M., Supervising
Veterinarian, Mastitis Program (Ithaca)
Price, Jessie I., B.S., M.S., Ph.D., Research
Specialist in Avian Diseases (Eastport)
Sandhu, Tirath S., B.V.Sc., M.S., Ph.D., Field
Veterinarian (Eastport)
Wager, Leslie A., D.V.M., Field Veterinarian,
Mastitis Program (Canton)

Library

Reinap, Mia, B.S., B.S. (Library Science),
Librarian of the Flower Veterinary Library
Miller, Pearl S., B.S., M.Ed., M.L.S., Associate
Librarian
Wilson, Marijo S., B.A., M.L.S., Assistant
Librarian

Research Associates and Specialists

Argenzio, Robert A., B.S., M.Sc., Ph.D.,
Physiology, Biochemistry, and Pharmacology
Brown, Talmage T., Jr., B.S., D.V.M., Ph.D.,
Large Animal Medicine, Obstetrics, and
Surgery
Burda, Karina, B.S., M.S., Large Animal Medi-
cine, Obstetrics, and Surgery
Clemens, Edgar T., A.S., B.S., M.S., Ph.D.,
Physiology, Biochemistry, and Pharmacology
Cowen, Barrett S., B.S., M.S., Specialist,
Veterinary Avian Diseases
Drost, Cornelis J., B.S.E.E., Physiology, Bio-
chemistry, and Pharmacology
Holmes, Dorothy F., D.V.M., Ph.D., Veterinary
Microbiology
Kingsbury, John M., B.S., A.M., Ph.D., Lecturer
in Phytotoxicology
McCoy, Elena C., B.S., M.S., Ph.D., Large Animal
Medicine, Obstetrics, and Surgery
Wang, Jyi-Teh, B.S., M.S., Ph.D., Veterinary
Microbiology

Residents and Interns

Alexander, Joseph W., Jr., B.S., D.V.M., Small
Animal Medicine and Surgery
Barrett, Ralph E., B.A., D.V.M., Small Animal
Medicine and Surgery
Buergett, Claus D., D.V.M., Veterinary Pathology
Dequine, Louis E., III, B.S., D.V.M., Large
Animal Medicine, Obstetrics, and Surgery
Greene, Craig E., B.S., D.V.M., Small Animal
Medicine and Surgery
Hamilton, Donald D., B.S., D.V.M., Large Animal
Medicine, Obstetrics, and Surgery
Inhelder, James L., B.S., D.V.M., M.S., Veterinary
Pathology
Johnson, John E., D.V.M., Resident, Large
Animal Medicine, Obstetrics, and Surgery
MacCoy, Douglas M., B.S., D.V.M., Small Animal
Medicine and Surgery
McCoy, Michael D., D.V.M., Large Animal
Medicine, Obstetrics, and Surgery
Reinerton, Eric L., D.V.M., Resident, Large
Animal Medicine, Obstetrics, and Surgery
Riis, Ronald C., B.S., D.V.M., Resident, Small
Animal Medicine and Surgery
Schmidt, Gregory R., B.S., D.V.M., Large Animal
Medicine, Obstetrics, and Surgery
Scott, Danny W., B.S., D.V.M., Instructor,
Small Animal Medicine
Smith, Mary C., B.S., D.V.M., Large Animal
Medicine, Obstetrics, and Surgery

Specialists and Technicians

Ames, Claude K., Livestock Superintendent
 Batik, George J., Medical Illustrator
 Mowers, Harold, Farrier
 Reidemanis, Alfreds, Anatomical Specialist
 Ryan, Gerald D., X-ray Lecturer
 Sadler, Lewis L., Medical Illustrator

Visiting Staff, 1972-73

Drost, Maarten, Davis, California
 Kishi, Fatehiko, Tokyo, Japan
 Mitin, Vladimir, Zagreb, Yugoslavia
 Williams, Theodore S., Tuskegee Institute,
 Alabama

Standing Committees of the College Faculty*

General Committee (Elective)

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 L. P. Krook (1972-75)
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 W. O. Sack (1973-76)

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 R. K. Braun (1972-75)
 C. E. Stevens (1972-74)
 A. de Lahunta (1973-76)
 B. C. Tennant (1973-76)
 L. P. Krook, Representative from the
 General Committee

Class Advisory Committee

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 E. J. Trotter
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W. J. Roenigk (protem for J. Bentinck-Smith)
 G. R. Bolton
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 F. A. Kallfelz
 F. W. Scott
 J. F. Wootton

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S. G. Campbell
A. de Lahunta
F. H. Fox
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C. E. Hall
J. M. King
J. B. Tasker

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Clinical Pathological Conference

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G. R. Bolton
B. C. Tennant

Sixty-Sixth Annual Conference for Veterinarians

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J. B. Tasker
R. F. Kahrs
H. F. Schryver
C. E. Hall

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L. Coggins
S. B. Hitchner

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S. B. Hitchner
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G. L. Rumsey
W. S. Schwark
F. W. Scott
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L. P. Krook
A. J. Winter
L. Corbeil
R. P. Brockman
J. M. Gaskin

Students, Veterinary College*

Graduate Students, Fall 1972-73

Allen, Ralph W., B.S., D.V.M., Fort Lauderdale, Florida (Leave of absence)
Amand, Wilbur B., V.M.D., Philadelphia, Pennsylvania
Arjsongkoon, Picroh, M.S., Bangkok, Thailand
Ballas, Lawrence, B.S., M.S., Hamden, Connecticut
Bemis, David A., B.S., Ithaca
Berkhoff, German Q., D.V.M., Santiago, Chile
Bloch, Earl F., B.S., M.A., Brooklyn
Braide, Ekumen, M.S., Ibadan, Nigeria
Braide, Victor B. C., D.V.M., Ibadan, Nigeria
Bräutigam, Fred E., D.V.M., Managua D.N., Nicaragua (Leave of absence)

Brockman, Ronald P., B.A., D.V.M., Quinton,
Saskatchewan, Canada

Brown, Talmage T., D.V.M., B.S., Raleigh,
North Carolina (Leave of absence)

Bubar, Richard H., A.B., D.V.M., Urbana,
Illinois (Leave of absence)

Carlson, Jack H., B.S., D.V.M., Heber, Utah

Carlson, Pamela, B.S., West Hatfield,
Massachusetts

Chmielewski, Richard, B.S., Utica

Corbeil, Lynette B., D.V.M., M.S., British
Columbia, Canada

Cowen, Barrett S., B.S., M.S., Lebanon, New
Hampshire (Leave of absence)

Davies, D. Hugh, B.V.Sc., Patea, New Zealand

Drake, Rosemarie, B.A., M.S., Lima, Peru

DuFrain, Russell, M.S., Bradley, Illinois

El-Attar, Abdallah F., B.V.Sc., Cairo, Egypt
(Leave of absence)

Erickson, Eric D., D.V.M., Qualicum Beach,
British Columbia, Canada

Fullmer, Curtis, B.S., M.S., Angola

Gaskin, Jack M., D.V.M., Watertown

George, Lisle W., B.S., D.V.M., Blairsville,
Pennsylvania

Hedhammer, Ake A., D.V.M., Danderyd, Sweden
(Leave of absence)

Higgins, David A., B.V.Sc., Manchester,
Lancashire, England

Hsu, Frank Shin-yun, B.S., M.S., Hsin-yun,
Taiwan, China

Humphrey, Peter W., B.A., Ithaca (Leave of
absence)

Jacobson, Frederick L., B.S., M.S., North Bend,
Oregon (Leave of absence)

Johnson, John E., D.V.M., Manitoba, Canada

Kalunda, Maurice, B.V.Sc., Masaka, Uganda,
E. Africa

Keen, James, B.A., Forest Hills

Lippiello, Louis, A.A.S., B.S., M.S., Newfield
Mills, Daniel C., B.S., Penn Yan

Mohler, Nancy, B.A., Eugene, Oregon

Molt, James, A.G., Plainfield, New Jersey

Morgan, Robert A., B.A., M.A., Kalamazoo,
Michigan (Leave of absence)

Robinson, Donald L., B.S., D.V.M., Pleasantville

Rogerson, Katherine M., B.S., Brookfield, Ohio
(Leave of absence)

Sagan, Cyril E., B.S., M.Ed., M.S., Detroit,
Michigan

Sample, Judith, B.A., Colorado Springs,
Colorado

Sansi, Kamoru A., B.V.M.S., M.S., Ijebu, Nigeria

Scarsi, Roberto M., D.V.M., Montevideo, Uruguay

Schurig, Gerhardt D., D.V.M., Santiago, Chile

Semafuko, Wasswa, M.S., Kampala, Uganda,
E. Africa

Smith, Maurice W., D.V.M., Lloydminster,
Alberta and Saskatchewan, Canada

Toth, Thomas E., D.V.M., Budapest, Hungary

Ward, David E., B.S., D.V.M., Brawley,
California

Wright, Joseph, B.S., D.V.M., Alpine, Texas

Wu, Fu-Ming, B.V.M., Taipei, Taiwan, China

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

Fourth Year, Class of 1974

Arnold, Stephen Alfred, Seaford

Aylesworth, Chris, Johnson City

Barsanti, Jeanne Ann, Minoa

Bluvas, Peter Jan, Amsterdam

Brooke, Gregory Paul, Baldwin, Wisconsin

Campbell, Bruce Carter, Fort Collins, Colorado

Chamberlin, Mark Elton, Waverly

Chang, Wen C., Morton Grove, Illinois

Cochrane, Jack Alan, Ripley

Deans, Margaret Alice, Alfred, Maine

Dykes, Nathan Leonard, Teaneck, New Jersey

Evans, David Allen, Springville

Evans, Douglas Edward, Georgetown

Fagan, Richard Howard, Rochester

Fisher, James Lee, Glens Falls

Glauberg, Aaron Frank, Hewlett

Gonzalez, Theodore R., E. Brentwood

Harris, Robert Lee, Norman, Oklahoma

Hodsden, Wayne Kenneth, Dryden

Holden, Matthew Elden, West Paris, Maine

Jagar, John Eugene, Charleston, South Carolina

Jones, Cody Luther, Wauseon, Ohio

Kent, Frederick Howe, Rumford, Maine

Kernahan, James William, Nunda

Kneen, Timothy Arthur, Armonk

Koslow, Gary Lee, Massapequa Park

Kram, Malcolm Alexander, Bronx

Lee, John William Jr., Wilmington, Delaware

Lemieux, Gerald Philip, Middlebury, Vermont

Lemieux, Lynda Beattie, Middlebury, Vermont

MacDonald, John Milner, Plymouth, New
Hampshire

MacNeil, Bradley Patton, Fayetteville

Medic, David V., Irwin, Pennsylvania

Meuten, Donald John, Sharon, Connecticut

Morena, Craig Thomas, Massapequa

Muller, Henry Otto, Northport

Myers, Bernard Samuel, Orlando, Florida

Naef, Henry Milford J., Woodhaven

Nelson, Gary Howard, Pearl River

Nelson, Thomas Philip, Webster

Nichols, Robert W., Jr., Skaneateles

Nugent, Martin Francis, Westfield, New Jersey

Peduzzi, Roger James, Kinderhook

Rees, Roger Elliot, Morgan, Utah

Rosenfeld, Irv Steven, Island Park

Rowe, Donald Lawrence, Vassalboro, Maine

Russo, Elizabeth A., Staten Island

Schlafer, Donald Hughes, Oxford

Seader, Richard Paul, Merrick

Seleen, William Arvid, DeWitt

Sherman, Bruce Aneur, Woodstock, Connecticut

Shiro, Alan G., Mt. Vernon

Tedeschi, Mitchell J., Little Neck

Terry, Charles Miles II, Huntington Station

Travis, Henry Joseph, Huntington

Weinstein, Susan Jane, Cobleskill

Westfall, Geoffrey James, Cazenovia

Winn, Kenneth Frank, Hamburg

Zambito, Michael J., Newburgh

Third Year, Class of 1975

Abair, Harold W., Hauppauge
 Adams, Stephen B., Hector
 Aspros, Douglas G., Flushing
 Balonek, Gerald J., Rochester
 Breen, Robert E., Pleasantville
 Brownie, Cecil, F. G., Jamaica, West Indies
 Bruzugul, Joseph B., Jr., LaGrangeville
 Charlebois, Andre, Redwood
 Cogar, John D., Fairport
 Cohen, Steven Jay, Rochester
 Cole, John F., Sherrill
 Collier, Linda, Caribou, Maine
 D'Amura, Thomas, East Hampton
 Dattner, Leslie B., Brooklyn
 Deutsch, David E., East Orange, New Jersey
 Dewey, Elizabeth A., Ithaca
 DiRusso, Nicholas, Pelham
 DuBato, George A., Amityville
 Efron, Robert F., Douglaston
 Epstein, Allen W., New York City
 Fish, Stanley G., New Hyde Park
 Geasling, Jay W., Sagaponack
 Gray, James H., Wilmington, Delaware
 Greene, Jerry A., Brooklyn
 Hancock, David H., Carthage
 Hulslander, Ronald, Elmira Heights
 King, Linda R., Madison, Wisconsin
 King, Michael J., Madison, Wisconsin
 Kryger, Michael, Centerport
 Langweiler, Marc, Bayside
 Leventhal, Rita S., Albany
 Linderman, Ira A., Brooklyn
 Manning, Thomas O., Floral Park
 McCarthy, Walter K., Kenmore
 Mindlin, Douglas S., New Rochelle
 Mirro, Elmer J., Monroeville, Pennsylvania
 Moffa, John V., Blenheim, New Jersey
 Morris, Alan S., New Haven, Connecticut
 Morris, Robert, Staten Island
 Mroz, Sharon M., New City
 Olender, Steven, Great Neck
 O'Neil, John W., Lancaster
 Pane, Robert T., Tonawanda
 Pollak, William, New York City
 Rotondo, Kenneth, Franklin
 Rubin, Nolan P., Freeport
 Russell, Don E., Ogdensburg
 Schatz, Howard R., Brooklyn
 Schechter, Lee, Valley Stream
 Strachan, Douglas, Ithaca
 Tangorra, Lewis, Flushing
 Tanneberger, Thomas, Westport
 Tausz, Alan M., Flushing
 Truelove, Robin, Bethany, Connecticut
 Vail, David G., Lagrangeville
 Van Wie, Stephen A., Middletown
 Vukman, Gerald, Batavia
 Wallace, Lee A., Rockville Centre
 Walter, Mark K., Delanco, New Jersey
 White, Maurice E., Pine Bush
 Wilcox, Leigh T., Fulton
 Zwart, James, Washingtonville

Second Year, Class of 1976

Amann, John F., Rochester
 Appel, Roy J., Rego Park
 Bartiromo, Teresa, Chicopee, Massachusetts
 Baum, Samuel, Scarsdale
 Begg, Susan, Bucksport, Maine
 Bloch, Peter W., Flushing
 Bouffard, John F., Cleverdale
 Brondum, Jack, Brewer, Maine
 Bush, Wende E., Rochester
 Carlson, Robert W., Bedford, Massachusetts
 Clark, John A., Palmyra
 Contino, John A., East Northport
 Daab, Barbara J., Glens Falls
 Deitsch, Philip O., Freeville
 Family, Laurence, Schenectady
 Freyburger, Peter J., Tonawanda
 Friel, Michael A., Wilmington, Delaware
 Goldberg, Gary P., Newburgh
 Gould, Willard J., III, Staten Island
 Gross, John F., Orono, Maine
 Gumaer, Kenneth I., Jr., Rhinebeck
 Heslink, Paul I., Clymer
 Holden, Lawrence, Brooklyn
 Holt, Thomas J., Brentwood
 Hughes, Judith M., Sauquoit
 Humphrey, Peter, Ithaca
 Ingraham, Peter J., Ransomville
 Jacobs, Eric, New Rochelle
 Jaworski, Walter C., Loudonville
 Johnson, Francis M., Jr., Miami, Florida
 Johnson, Jolyon, Wendell, New Hampshire
 Kay, Michael R., Flushing
 Kittell, John C., Elnora
 Lawless, James M., Oneonta
 Levine, Mark R., Bayside
 Marshall, Kent R., North Rose
 Martorana, Francis S., Schenectady
 Morizi, John L., Pelham
 Murphy, Randall L., East Northport
 Nusbaum, Kenneth E., Ithaca
 O'Connor, Robert, Glens Falls
 Peckham, Susan B., Freeville
 Petro, Russell J., Westbury
 Phillips, Frances L., Cortland
 Randall, William E., Gouverneur
 Rogers, Robert A., Collins Center
 Rosser, Edmund J., Jr., Brooklyn
 Rothwell, Thomas P., Ithaca
 Schwarz, David J., Bayside
 Shepherd, William F., Clark Mills
 Shull, Robert M., Cheshire, Connecticut
 Shultz, Craig E., Berwick, Pennsylvania
 Smiley, Daryl, New York City
 Smith, Gary E., Bainbridge
 Stack, Robert M., Syracuse
 Storozum, Sidney H., New York City
 Sutton, George F., Georgetown, Kentucky
 Trenka-Benthin, Susan M., Denville, New Jersey
 Valinsky, Victor, Commack
 Venezia, Lawrence E., Osterville, Massachusetts
 Veralli, Paul J., Mamaroneck
 Volpini, Lucia M., Astoria
 vonKutzleben, Roy, Wyckoff, New Jersey
 Walsh, John M., Roslyn Heights
 Wilderoter, Katharine, East Aurora

First Year, Class of 1977

Abenanty, Linda L., Oneonta
 Allen, Charles H., Newmarket, New Hampshire
 Austin, Frederick G., Beacon
 Baldridge, Nora S., North Rose
 Beekman, Gerard K., Hauppauge
 Berkowitz, Jay A., Massapequa
 Bertoldo, Gerald R., Staten Island
 Bochino, Mary S., Baldwinville
 Brenneman, James D., Eden
 Byer, Linda D., Macedon
 Carman, Donald M., Baldwin
 Chapman, Edward B., Alpine
 Chuff, Nicholas, Frankfort
 Comings, Timothy C., Bainbridge
 Covitz, Jack, Great Neck
 Cruikshank, Robert E., Ogdensburg
 Ellis, Roger G., Albany
 Everitt, Jeffrey I., Verona, New Jersey
 Ferry, John W., Germantown
 FitzPatrick, Timothy L., Wayland
 Foley, Mark H., Clinton
 Gillette, Deborah M., Rochester
 Griffin, Craig E., Delmar
 Hajdu, Andrew S., Plainview
 Hall, Jeffrey A., New Canaan, Connecticut
 Hayden, James G., Springfield, Massachusetts
 Helfat, Mark P., Douglaston
 Hoppe, Robert W., Stony Brook
 Huntington, Ann L., Binghamton
 Jenkins, David H., Catskill
 Kasprzak, Kenneth E., Cheektowaga
 Landsman, Clifford, Brooklyn

Levine, Steve B., Flushing
 Lindsey, Alan B., Grand Island
 Lissman, Barry A., Flushing
 Lubar, Jonathan B., Morristown, New Jersey
 Lynch, Patrick A., Poughquag
 Makowski, Christine M., Great Neck
 Manfra, Sandra J., Staten Island
 Miller, Lila T., New York City
 Minster, Karl C., West Newbury, Massachusetts
 Monroe, Timothy J., Schenectady
 Noga, Mary Jean, Windsor, Connecticut
 Oliver, Reid J., Syracuse
 Perry, Robert W., Melrose, Massachusetts
 Peters, Ronald J., Cambridge
 Pointek, Kathleen A., Esmond, Rhode Island
 Prentice, Faith M., Binghamton
 Randolph, John F., Flushing
 Reamsnyder, Karen E., Camillus
 Rothermich, Ann L., Ithaca
 Sanders, Clark, Delhi
 Sanford, Steven P., Baldwinville
 Schnabel, Arthur J., New York City
 Schwytzer, Donald G., Wyoming
 Shek, William R., Queens Village
 Silverman, Steven B., Uniondale
 Solana, Richard P., New York City
 Tewes, Anton, Auburn
 Thonsen, William J., East Meadow
 Williams, Craig B., Coventry, Connecticut
 Wolfthal, David M., New York City
 Woods, Rochelle E., Buffalo
 Yarkoni, Uriel, Ithaca
 Yarnell, Gary A., Oceanside



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(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.

New York State College of Agriculture and Life Sciences
College of Architecture, Art, and Planning
College of Arts and Sciences
Department of Asian Studies
Graduate School of Business and Public Administration
Field of Education (Graduate)
College of Engineering
Engineering at Cornell
Graduate Study in Engineering and Applied Sciences
General Information*
Graduate School
Graduate School: Course Descriptions
School of Hotel Administration
New York State College of Human Ecology
New York State School of Industrial and Labor Relations
Law School
Medical College (New York City)
Graduate School of Medical Sciences (New York City)
Cornell University—New York Hospital School of Nursing (New York City)
Graduate School of Nutrition
Officer Education (ROTC)
Summer Session
New York State Veterinary College

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