



Cornell University

Announcements

New York State

Veterinary College

1970-71

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

#### CORNELL UNIVERSITY ANNOUNCEMENTS

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Veterinary College

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## Cornell Academic Calendar

	<i>1970-71*</i>
Registration, new students	Th, Sept. 10
Registration, continuing and rejoining students	F, Sept. 11
Fall term instruction begins, 7:30 a.m.	M, Sept. 14
Citizenship recess:	
Instruction suspended, 1:10 p.m.	S, Oct. 24
Instruction resumed, 7:30 a.m.	Th, Nov. 5
Thanksgiving Day, a holiday	Th, Nov. 26
Christmas recess:	
Instruction suspended, 4:30 p.m.	T, Dec. 22
Instruction resumed, 7:30 a.m.	M, Jan. 4
Fall term instruction ends, 1:10 p.m.	S, Jan. 9
Independent study period begins, 2:00 p.m.	S, Jan. 9
Final examinations begin	W, Jan. 13
Final examinations end	W, Jan. 20
Intersession begins	Th, Jan. 21
Registration, new and rejoining students	Th, Jan. 28
Registration, continuing students	F, Jan. 29
Spring term instruction begins, 7:30 a.m.	M, Feb. 1
Spring recess:	
Instruction suspended, 1:10 p.m.	S, Mar. 27
Instruction resumed, 7:30 a.m.	M, Apr. 5
Spring term instruction ends, 1:10 p.m.	S, May 15
Independent study period begins	M, May 17
Final examinations begin	M, May 24
Final examinations end	T, June 1
Commencement Day	M, June 7
Eight-week Summer Session registration	M, June 21
Eight-week Summer Session begins	M, June 21
Six-week Summer Session registration	W, June 30
Six-week Summer Session begins	Th, July 1
Summer Session examinations begin	Th, Aug. 12
Summer Session examinations end	F, Aug. 13
Summer Session ends	F, Aug. 13

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

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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.

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## College Administration

George C. Poppensiek, Dean of the Veterinary College  
Kenneth McEntee, Associate Dean for Clinical Studies  
Charles G. Rickard, Associate Dean for Pre-Clinical Studies

William H. Johndrew, Director of Student Administration  
Howard E. Evans, Secretary of the College  
Lindley C. Kent, Administrative Assistant

## Faculty

### Emeritus Professors

Baker, Donald W., B.S., D.V.M., Ph.D., Professor of Veterinary Parasitology, Emeritus  
Danks, A. Gordon, B.S., D.V.M., Professor of Veterinary Surgery, Emeritus  
Dukes, H. Hugh, B.S., D.V.M., M.S., D.H.C., D.Sc., Professor of Veterinary Physiology, Emeritus  
Fincher, Myron G., D.V.M., M.S., Professor of Veterinary Medicine, Emeritus  
Gilman, Herbert L., D.V.M., M.S., Ph.D., Professor of Veterinary Bacteriology, Emeritus  
Leonard, Ellis P., B.S., D.V.M., Professor of Small Animal Surgery, Emeritus  
Olafson, Peter, D.V.M., M.S., Professor of Veterinary Pathology, Emeritus  
Stephenson, Hadley C., B.S., D.V.M., Professor of Veterinary Therapeutics and Small Animal Diseases, Emeritus

### Professors

Baker, James A., B.S., M.S., Ph.D., D.V.M., Professor of Veterinary Virology, and

Director of the Veterinary Virus Research Institute  
Bentinck-Smith, John, A.B., D.V.M., Professor of Clinical Pathology  
Bergman, Emmett N., B.S., D.V.M., M.S., Ph.D., Professor of Veterinary Physiology  
Bjorck, Gustaf R., D.V.M., Ph.D., Visiting Professor of Surgery  
Boyer, Clyde I., Jr., V.M.D., M.S., Professor of Laboratory Animal Medicine  
Bruner, Dorsey W., B.S., Ph.D., D.V.M., Professor of Veterinary Microbiology, and Chairman of the Department of Veterinary Microbiology  
Calnek, Bruce W., D.V.M., M.S., Professor of Avian Diseases  
Carmichael, Leland E., A.B., D.V.M., Ph.D., John M. Olin Professor of Virology (on sabbatical leave, second term)  
Comar, Cyril L., B.S., Ph.D., Professor of Physical Biology, and Head of the Department of Physical Biology  
Delahanty, Donald D., D.V.M., M.S., Professor of Veterinary Surgery  
Dobson, Alan, B.A., Ph.D., Professor of Vet-

## 6 Faculty and Staff

- erinary Physiology (on sabbatical leave, 1970-71)
- Evans, Howard E., B.S., Ph.D., Professor of Veterinary Anatomy, and Secretary of the College
- Fabricant, Julius, B.S., V.M.D., M.S., Ph.D., Professor of Avian Diseases
- Fox, Francis H., D.V.M., Professor of Veterinary Medicine and Obstetrics, and Director of the Ambulatory Clinic
- Gasteiger, E. L., Jr., A.B., M.S., Ph.D., Professor of Physical Biology
- Geary, Jack C., D.V.M., Professor of Radiology and Director of Radiology in the Department of Large Animal Medicine, Obstetrics, and Surgery
- Georgi, Jay R., D.V.M., Ph.D., Professor of Veterinary Parasitology
- Gillespie, James H., V.M.D., Professor of Veterinary Bacteriology
- Habel, Robert E., D.V.M., M.Sc., M.V.D., Professor of Veterinary Anatomy, and Head of the Department of Anatomy
- Hitchner, Stephen B., B.S., V.M.D., Professor of Avian Diseases, and Head of the Department of Avian Diseases
- Kirk, Robert W., B.S., D.V.M., Professor of Small Animal Medicine, Chairman of the Department of Small Animal Medicine and Surgery, and Director of the Small Animal Clinic
- Krook, Lennart P., D.V.M., Ph.D., Professor of Veterinary Pathology, and Graduate Field Representative
- Lengemann, Fred W., B.S., M.N.S., Ph.D., Professor of Radiation Biology
- Levine, P. Philip, B.S., D.V.M., M.S., Ph.D., Professor of Avian Diseases
- McEntee, Kenneth, D.V.M., Professor of Veterinary Medicine and Pathology, and Associate Dean for Clinical Studies
- Norcross, Neil, A.B., M.S., Ph.D., Professor of Immunochemistry
- Noronha, Fernando M., D.V.M., Professor of Veterinary Virology
- Peckham, Malcolm C., B.S., D.V.M., Professor of Avian Diseases
- Poppensiek, George C., V.M.D., M.S., Professor of Veterinary Microbiology, and Dean of the College
- Rickard, Charles G., D.V.M., M.S., Ph.D., Professor of Pathology, Chairman of the Department of Veterinary Pathology, and Associate Dean for Preclinical Studies
- Roberts, Stephen J., D.V.M., M.S., Professor of Veterinary Medicine and Obstetrics, and Chairman of the Department of Large Animal Medicine, Obstetrics, and Surgery
- Sellers, Alvin F., V.M.D., M.S., Ph.D., Professor of Veterinary Physiology, and Head of the Department of Physiology, Biochemistry, and Pharmacology
- Sheffy, Ben E., B.S., M.S., Ph.D., Professor of Nutrition, and Assistant Director of Cornell Research Laboratory for Diseases of Dogs
- Stevens, Charles E., B.S., D.V.M., M.S., Ph.D., Professor of Veterinary Physiology
- Tapper, Daniel N., B.S., V.M.D., Ph.D., Professor of Physical Biology
- Tasker, John B., D.V.M., Ph.D., Professor of Clinical Pathology
- Vaughan, J. Thomas, D.V.M., Professor of Veterinary Surgery and Director of the Large Animal Hospital
- Wasserman, Robert H., B.S., M.S., Ph.D., Professor of Radiation Biology
- Whitlock, John H., D.V.M., M.S., Professor of Veterinary Parasitology
- Winter, Alexander J., B.S., D.V.M., M.S., Ph.D., Professor of Veterinary Microbiology
- Wootton, John F., B.S., M.S., Ph.D., Professor of Physiological Chemistry

## Associate Professors

- Appel, Max J., D.M.V., Ph.D., Associate Professor of Veterinary Virology
- Aronson, Arthur L., B.S., D.V.M., M.S., Ph.D., Associate Professor of Veterinary Pharmacology
- Brasmer, Timothy H., D.V.M., Ph.D., Associate Professor of Small Animal Surgery
- Campbell, S. Gordon, B.V.M.S., M.V.Sc., Ph.D., Associate Professor of Veterinary Microbiology
- Casarett, Alison P., B.S., M.S., Ph.D., Associate Professor of Radiation Biology (on sabbatical leave, 1970-71)
- Coggins, Leroy, B.S., D.V.M., Ph.D., Associate Professor of Veterinary Virology
- Craig, Peter H., B.S., V.M.D., M.S., Associate Professor of Pathology in the Department of Physical Biology
- de Lahunta, Alexander, D.V.M., Ph.D., Associate Professor of Veterinary Anatomy
- Hall, Charles E., A.B., D.V.M., Associate Professor of Reproductive Studies
- Haynes, N. Bruce, B.S., D.V.M., Associate Professor of Veterinary Science, and Extension Veterinarian
- Hillman, Robert B., A.B., D.V.M., M.S., Associate Professor of Veterinary Medicine and Obstetrics
- Kahrs, Robert F., D.V.M., M.S., Ph.D., Associate Professor in Veterinary Epidemiology
- King, John M., D.V.M., Ph.D., Associate Professor of Veterinary Pathology
- Lee, Kyu M., M.D., Ph.D., Associate Professor of Virology (on sabbatical leave, first term)
- Lowe, John F., D.V.M., M.S., Associate Professor of Veterinary Surgery
- Nangeroni, Louis L., B.S., D.V.M., M.S., Associate Professor of Veterinary Physiology (on sabbatical leave, 1970-71)
- Post, John E., B.S., D.V.M., Ph.D., Associate Professor of Veterinary Pathology
- Postle, Donald S., D.V.M., M.S., Associate Professor of Veterinary Science
- Ross, George E., Jr., B.S., D.V.M., M.S., Associate Professor of Small Animal Surgery



Sack, Wolfgang O., D.V.M., M.R.C.V.S., Ph.D., Associate Professor of Veterinary Anatomy (on sabbatical leave, 1970-71)  
 Schryver, Herbert F., B.A., D.V.M., Ph.D., Associate Professor of Pathology, and Director of Equine Research Program  
 Thompson, John C., Jr., B.S., M.S., Ph.D., Associate Professor of Environmental Radiation Biology

Taylor, Alan N., A.A.S., B.S., M.S., Ph.D., Senior Research Associate in the Department of Physical Biology  
 Waterman, Fausto E., D.V.M., Senior Research Associate in the Department of Veterinary Pathology  
 Wentworth, Richard A., B.S., M.S., Ph.D., Senior Research Associate in the Department of Physical Biology

### Assistant Professors

Arion, William J., B.S., M.S., Ph.D., Assistant Professor of Physiological Chemistry  
 Bistner, Stephen I., B.S., D.V.M., Assistant Professor of Comparative Ophthalmology  
 Bolton, Gary R., D.V.M., Assistant Professor of Small Animal Medicine-Cardiology  
 Braun, R. Kenneth, B.S., D.V.M., Assistant Professor (on leave)  
 Buratto, Bruno, Jr., D.V.M., M.S., Assistant Professor in the Department of Large Animal Medicine, Obstetrics, and Surgery  
 Cummings, John F., B.S., D.V.M., M.S., Ph.D., Assistant Professor of Veterinary Anatomy  
 Hintz, Harold F., B.S., M.S., Ph.D., Assistant Professor of Animal Nutrition  
 Ingram, James T., D.V.M., Visiting Assistant Professor of Veterinary Anatomy  
 Kalfelz, Francis A., D.V.M., Ph.D., Assistant Professor of Physical Biology  
 Lust, George, B.S., Ph.D., Assistant Professor of Biochemistry  
 McCashin, Frederic B., B.A., V.M.D., M.S., Assistant Professor of Veterinary Surgery  
 Scott, Frederic W., B.S., D.V.M., Ph.D., Assistant Professor of Veterinary Microbiology  
 Whitlock, Robert H., D.V.M., Ph.D., Assistant Professor in the Department of Large Animal Medicine, Obstetrics, and Surgery

### Senior Research Associates

Britt, Alfred L., D.V.M., M.P.H., Ph.D., Senior Research Associate in the Department of Veterinary Pathology  
 Dellers, Robert W., D.V.M., Ph.D., Senior Research Associate in the Department of Veterinary Pathology  
 Dougherty, Ellsworth III, B.S., V.M.D., M.S., Ph.D., Senior Research Associate in the Department of Veterinary Pathology  
 Dunn, Henry O., B.S., M.S., Ph.D., Senior Research Associate in the Department of Large Animal Medicine, Obstetrics, and Surgery  
 Hiltz, Frederick L., B.S.E.E., M.S.E.E., Ph.D., Senior Research Associate in the Department of Physical Biology  
 Moraff, Howard, A.B., B.S., M.S., Ph.D., Senior Research Associate in the Department of Physical Biology  
 Sickles, Walter J., B.S., D.V.M., Senior Research Associate in the Department of Veterinary Pathology

### Professional Service— Laboratories

Angstrom, Clement I., D.V.M., Director of Laboratory, Avian Disease Program (Kingston)  
 Boldt, Vincent L., D.V.M., Field Veterinarian, Mastitis Program (East Aurora)  
 Field, Lincoln E., D.V.M., Field Veterinarian (Ithaca)  
 Grout, Alan J., D.V.M., Director of Laboratory Animal Standards  
 Guthrie, Richard S., D.V.M., Supervising Veterinarian, Mastitis Program (Ithaca)  
 Hagan, Jean R., D.V.M., Director of Laboratory, Avian Disease Program (Oneonta)  
 Hayes, Gerald L., D.V.M., Field Veterinarian (Earlville)  
 Leibovitz, Louis, B.A., B.S., V.M.D., Field Veterinarian (Eastport)  
 Linquist, Wesley, D.V.M., Field Veterinarian, Mastitis Program (Amsterdam)  
 Narotsky, Saul, D.V.M., Director of Laboratory, Avian Disease Program (East Aurora)  
 Nusbaum, Sidney R., D.V.M., Director of the Diagnostic Laboratory  
 Price, Jessie I., B.S., M.S., Ph.D., Research Specialist in Avian Diseases (Eastport)  
 Temple, Harry C., D.V.M., Field Veterinarian, Mastitis Program (Kingston)  
 Toth, Thomas, D.V.M., Research Specialist (Eastport)  
 Urban, William D., V.M.D., Director of Duck Research Laboratory (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  
 Sedgeley, Sharon E., B.S., M.S.L.S., Assistant Librarian

### Research Associates and Specialists

Burda, Karina, B.S., M.S., Research Associate in the Department of Large Animal Medicine, Obstetrics, and Surgery

## 8 Committees

Coote, Beverly A., Research Associate in the Department of Veterinary Pathology  
Corradino, Robert A., B.S., M.S., Ph.D., Research Associate in the Department of Physical Biology  
Cowen, Barrett S., B.S., M.S., Research Specialist in the Department of Veterinary Avian Diseases  
Fabricant, Catherine G., B.S., M.A., Research Associate in the Department of Veterinary Microbiology  
Holmes, Dorothy F., D.V.M., Ph.D., Research Associate in the Department of Veterinary Microbiology  
Johnson, George A., D.V.M., Research Associate in the Department of Pathology  
Kingsbury, John M., Ph.D., Lecturer in Phytotoxicology, and Associate Professor of Botany  
Korman, Ruth Z., B.S.A., M.S., Ph.D., Research Associate in the Department of Physical Biology  
McLeod, Francis D., Jr., B.S., Research Specialist in the Department of Physiology, Biochemistry, and Pharmacology  
Pickard, Duncan W., B.Sc., Ph.D., Research Associate in Department of Physiology, Biochemistry, and Pharmacology  
Zeissig, Alexander, B.S., D.V.M., M.S., Ph.D., Research Associate in the Department of Veterinary Microbiology

### Internes

Armstrong, James M., B.S., D.V.M., Interne in the Department of Veterinary Pathology  
Higginbotham, Ronald L., D.V.M., Interne in the Department of Large Animal Medicine, Obstetrics, and Surgery  
Lorenz, Michael D., B.S., D.V.M., Interne in the Department of Small Animal Medicine and Surgery  
McCauley, Alan D., D.V.M., Interne in the Department of Large Animal Medicine, Obstetrics, and Surgery  
Olson, Jerry D., B.S., D.V.M., Interne in the

Department of Large Animal Medicine, Obstetrics, and Surgery  
Olson, Patricia N., B.S., D.V.M., Interne in the Department of Small Animal Medicine and Surgery  
Orman, Michael E., B.A., B.S., D.V.M., Interne in the Department of Small Animal Medicine and Surgery  
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Trotter, Eric J., B.S., D.V.M., Interne in the Department of Small Animal Medicine and Surgery  
Twisselmann, Kenneth L., V.S., D.V.M., Interne in the Department of Large Animal Medicine, Obstetrics, and Surgery  
Wiebe, Edward J., D.V.M., Interne in the Department of Large Animal Medicine, Obstetrics, and Surgery  
Woodworth, John R., D.V.M., Interne in the Department of Large Animal Medicine, Obstetrics, and Surgery

### Specialists and Technicians

Brock, John F., Visual Aids Technologist  
Caleb, Paul J., X-Ray Technician  
Kellogg, Roland, Livestock Superintendent  
Mowers, Harold, Farrier  
Newson, Marion, R.N., Medical Illustrator  
Reidemanis, Alfreds, Anatomical Specialist  
Ryan, Gerald D., X-Ray Technician

### Visiting Staff, 1969-70

Bjorck, Gustaf, Danderyd, Sweden  
Danbara, Hiroshi, University of Tokyo, Tokyo, Japan  
Davidson, Mem M., Rishan LeZion, Israel  
Henrikson, Per A., Gothenburg, Sweden  
Inaba, Jiro, University of Tokyo, Tokyo, Japan  
Sandefeldt, Eva B., Sundryberg, Sweden  
Settergren, Ingemar, Stocksund, Sweden

### Standing Committees of the College Faculty\*

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J. B. Tasker (1969-72)  
S. G. Campbell (1970-73)  
F. W. Scott (1970-73)

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A. de Lahunta  
N. B. Haynes  
J. C. Geary  
S. G. Campbell

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J. Bentinck-Smith  
D. W. Bruner

#### SCHOLARSHIPS

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R. K. Braun  
W. H. Johndrew  
J. C. Thompson, Jr.  
R. H. Wasserman  
A. J. Winter

\* The Dean is ex officio a member of all committees.

CURRICULUM†

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E. N. Bergman  
T. H. Brasmer  
L. Coggins  
J. F. Cummings  
A. Dobson  
J. Fabricant  
K. McEntee  
C. G. Rickard  
F. W. Scott  
J. T. Vaughan

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D. W. Bruner, Chairman  
K. McEntee  
C. G. Rickard

STUDENT CONDUCT

S. J. Roberts, Chairman  
R. F. Kahrs  
P. P. Levine

COLLEGE LIBRARY

P. P. Levine, Chairman  
C. L. Comar  
R. E. Habel

CLASS ADVISORY COMMITTEE,

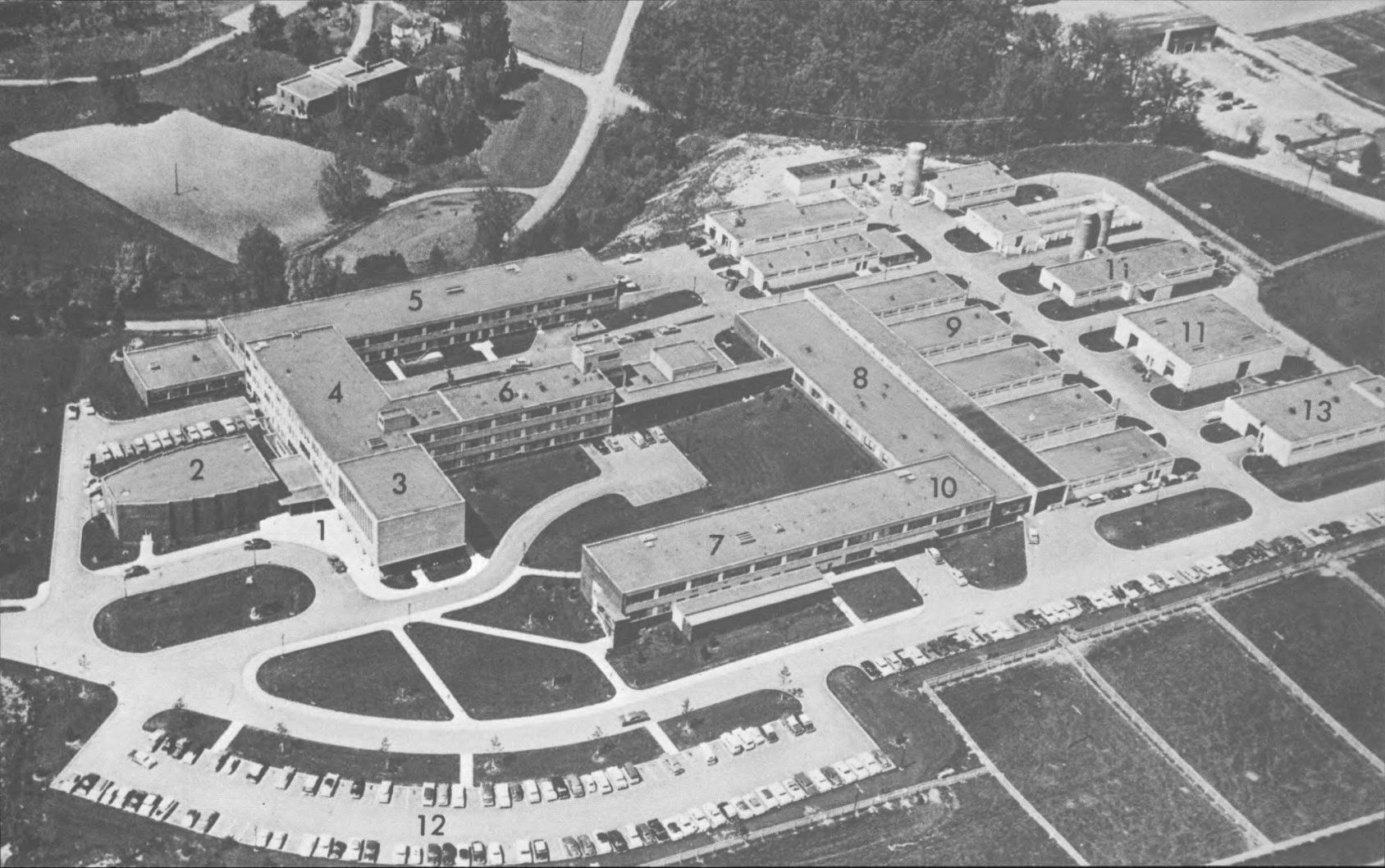
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*Class of 1974*  
R. E. Habel  
C. E. Hall  
J. M. King  
J. B. Tasker

*Class of 1973*  
J. F. Cummings  
J. E. Lowe  
G. E. Ross, Jr.

*Class of 1972*  
A. L. Aronson  
J. Bentinck-Smith  
J. C. Geary

*Class of 1971*  
D. W. Bruner  
H. E. Evans  
J. R. Georgi

† Student representatives are elected from each class.



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# Cornell University

## The Veterinary College

### Buildings

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 from New York. It has air connections with Boston, New York, Buffalo, Washington, D.C., Detroit, and other cities by way of Mohawk Airlines.

In 1957 the Veterinary College moved into new buildings at the eastern edge of the Cornell campus. Of a plot of about twenty acres, the buildings occupy nearly twelve acres, leaving the remainder for paddocks and exercise lots for animals. They 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 to all users. Individual study carrels are also available.

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

## 12 Buildings and Research Facilities

The library contains over 51,500 volumes and regularly receives 1,159 periodicals and series titles. Represented there is a world-wide selection of veterinary titles plus titles in the biomedical sciences designed to support undergraduate, graduate, and research programs. Cornell University libraries on the campus make available to the students over 3,625,000 volumes, and 50,000 journals and serials. These collections, interlibrary loans, and photoduplication of materials supplement the research potential of the veterinary library. The library is rich in historical and basic research resources, as well as recent monographic works and especially selected government publications.

The library issues a monthly newsletter listing recent acquisitions. Information on library regulations and suggestions for the use of the library are provided to new students. Additional instruction in bibliographic research is available for advanced problems. A special index to reference sources in the library is also available.

### Research Facilities

In addition to the facilities of the campus, extramural facilities for research on infectious, parasitic, and metabolic diseases of farm animals and small animals have been constructed, for the most part on Snyder Hill, about three miles from the campus, on a tract of 133 acres.

Besides the many buildings for housing animals, most of which have small pastures, exercise lots, or paddocks of their own, a number of laboratory buildings have been built for professional staff members stationed there for research. A laboratory for the study of leukemia, financed by the National Cancer Institute, was completed in 1967. At the same time the construction of a large animal isolation facility was finished. Both buildings are at the Snyder Hill Experiment Station.

### Poultry Disease Research and Diagnosis

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, virus, and parasitic diseases of chickens and turkeys. A respiratory disease-free flock of chickens is maintained for the production of chicks and embryos. There are 28 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. Facilities for housing investigators and graduate students are available.

DIAGNOSIS. The Veterinary College maintains and staffs regional veterinary laboratories for poultry disease diagnosis at Ithaca, East Aurora, Oneonta,

Kingston, and Eastport. The last is combined with the Duck Research Laboratory.

These diagnostic facilities serve the poultry industry needs in the surrounding area, and their staffs provide extension services and assist in the collection of materials and cases required for research in Ithaca.

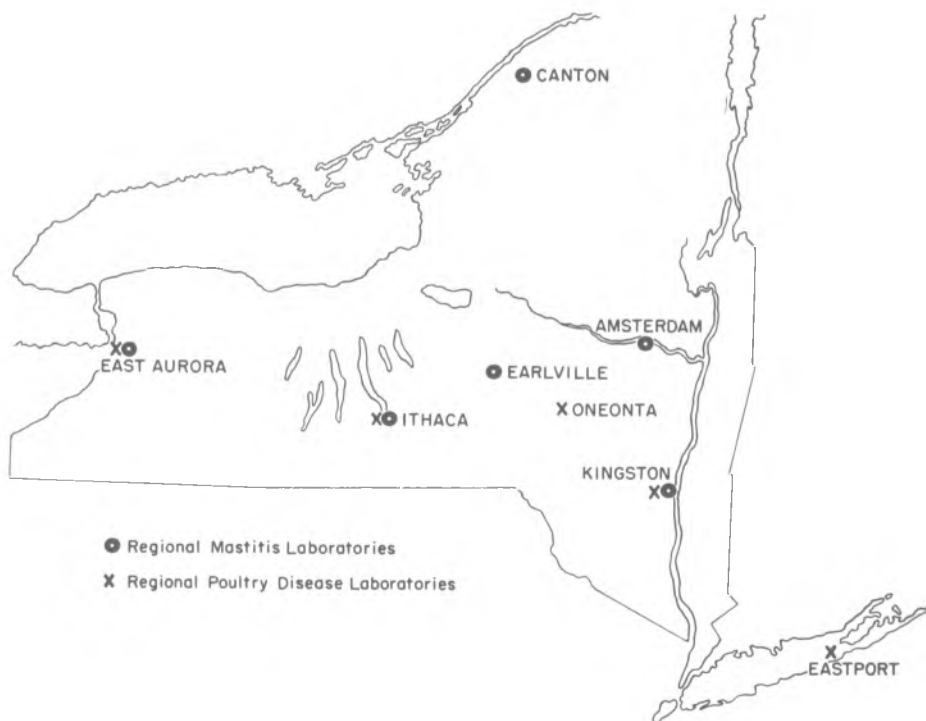
### New York State Mastitis Control Program

Six laboratories, strategically located in dairy areas of New York State, conduct work on mastitis control programs under the Department of Large Animal Medicine, Obstetrics, and Surgery in conjunction with local veterinarians.

*Ithaca* is the central laboratory where research and student training programs on mastitis control are conducted. The laboratory serves eleven counties with a cow population of about 166,000.

*Amsterdam* laboratory conducts, primarily, a control program for dairy owners. Eleven counties in the Hudson and Mohawk Valleys have approximately 156,000 cows.

*Canton* laboratory serves eight counties of northern New York with a cow population of about 229,000. The laboratory is located at the New York State Agricultural and Technical Institute where extension and some student teaching are practiced.



## **14 Buildings and Research Facilities**

*East Aurora* laboratory provides mastitis surveys to eleven western New York counties with nearly 238,000 cows. The laboratory devotes full time to control programs.

*Earlville* laboratory provides a control program for seven counties with nearly 260,000 cows in central New York.

*Kingston* laboratory serves ten counties and 110,000 cows located in the mid-Hudson and eastern New York area.

### **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 postgraduate 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 added to 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 electronmicroscopy as well as a library, offices, and a tissue culture laboratory. There are twenty-six animal isolation units constructed to avoid unplanned infections. They can be cleaned and decontaminated efficiently. Specific pathogen-free dogs are produced in a separate kennel building while in an additional isolation building other disease-free animals including pigs, chickens, guinea pigs, rabbits, and mice are housed.

### **Research on Sheep and Cattle Disease**

**SHEEP 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 new sheep barn including facilities for raising experimental animals under helminthologically sterile conditions has recently been constructed.

**DISEASES OF THE REPRODUCTIVE TRACT IN CATTLE.** Facilities are available for housing approximately one hundred heifers and thirty bulls, which are used for 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-acre tract of land provided by the University. This facility is an integral part of the Department of Physical Biology.

### **Muenscher Poisonous Plants Garden**

The most complete garden of poisonous plants in America is north of the James Law Auditorium. In cooperation with Cornell Plantations and the Genetics, Development, and Physiology Section of the Division of Biological Sciences, this collection of living plants which are poisonous to livestock is maintained by the Veterinary College. Each specimen is labeled with its scientific name, its common name, and the name of the plant family to which it belongs.

CORNELL UNIVERSITY ANNOUNCEMENTS  
New York State Veterinary College

### Admission 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. This new minimum time requirement and prerequisite courses will be used as criteria for entrance effective with the class entering in 1972.

<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 prerequisites.

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.

is registered, one should address correspondence to the State Education Department, Albany, N.Y. 12224, and not to this 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 his work and the employer will submit a letter of evaluation regarding his work.

The two summers of work shall be completed before the student's junior year at the Veterinary College. One summer shall be completed prior to entry into the Veterinary College. This requirement applies equally to both sexes.

**THE APPLICANT** should write, after September 1 of the year preceding the one in which admission is desired, to the Office of Admissions, Day Hall, Ithaca, N.Y. 14850, requesting the application forms for admission to the Veterinary College. The Office of Admissions will require a transcript of the applicant's college record as well as other credentials. Applicants are urged to take the Veterinary Aptitude Tests as administered by the Psychological Corporation, 304 East Forty-fifth Street, New York, N.Y. 10017. Full information will be furnished with the application form.

**THE NUMBER** of students that can be admitted annually is limited. 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 preparation but also the available evidence bearing on each applicant's character, seriousness of purpose, and fitness for the work that he proposes to undertake. A personal interview with the Committee on Admissions is required.

**PRIORITY** of application is not necessarily a determining factor in the selection of students to be admitted. Nevertheless, the gathering and the weighing of the necessary evidence require time, and, as the Committee will begin filling the eligible list early in the year, it is advantageous to the candidate to file his application early. February 15 is the latest date for filing applications. Students who have not completed work required for admission but expect to do so prior to July 1 may apply, and the Committee will act on the applications provisionally.

**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, 142 Day Hall, and foreign students are invited to write to that office for any information they may need, or to consult the staff about any problems they may have.

## 18 Admission and Entrance Requirements

**UNIVERSITY REQUIREMENTS.** Applicants for admission must not only satisfy the entrance requirements but must also comply with certain rules of the University as follows:

1. 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, Ithaca, N.Y. 14850.

If the candidate matriculates, the fee is credited to his account to cover matriculation charges and certain graduation expenses and to establish a fund for undergraduate and alumni class activities.

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.

2. Each entering student is expected to assume personal responsibility for fulfilling the following 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.

**IMMUNIZATION.** A satisfactory certificate of immunization against smallpox, on the form supplied by the University, must be submitted before registration. It will be accepted as satisfactory, only if it certifies that within the last three years a successful vaccination has been performed. If this requirement cannot be fulfilled by the student's home physician, opportunity for immunization will be offered by the Cornell medical staff during the student's first semester, with the cost to be borne by the student. If a student has been absent from the University for more than three years, immunity will be considered to have lapsed, and a certificate of revaccination must be submitted.

**X RAY.** Every student is required to have a chest x ray. Opportunity is given to satisfy this requirement during the student's first week on campus. The cost of the x-ray examination is included in the General Fee. When a student who has been away from the University for more than a year, wishes to reenter, he must, at his own expense, once more fulfill the chest x-ray requirement.

**MEDICAL EXAMINATION.** Each undergraduate student is required to submit a health history and to have a medical examination. (This applies also to special students who must meet other medical and health requirements such as physical education and submission of health history). A student accepted for admission will be sent forms to be filled out by his home physician and returned promptly to the Gannett Medical Clinic. A University physician will review the material before it becomes a part of the student's permanent health record. All information given is confidential. After arrival at Cornell, if the medical history indicates a need, a student will be given an appointment to consult a physician at the Clinic. When a student has been away from the University for more than a year, he must, upon reentrance, submit an interim health history on a University form.

**TETANUS TOXOID.** Undergraduate students, including special students enrolled in one-year or two-year courses, are required to be immunized to tetanus through use of tetanus toxoid. The University has adopted this rule to avoid reactions, often serious, if antitoxin (horse serum) is administered at the time of injury. Immunity through toxoid offers the advantage of protection without risk of antitoxin reaction.

Active immunization shall be acquired within five years prior to initial registration unless the student's home physician is unable to give the toxoid. If there has been no previous immunization, an original series of two or three doses, depending on the type used, spaced at least one month apart, will be necessary. This will be followed by a booster dose one year later. If there has been previous immunization, reactivation by a single booster dose is

required for entrance to Cornell. After entrance a booster dose will be given whenever medically indicated.

Certification of immunization by the student's home physician is to be reported on the immunization form supplied by the University. Students unable to obtain the immunization at home will be given the opportunity, during the first semester to obtain it from the Cornell medical staff or any Ithaca physician. If it is received from the former, a charge comparable to the average physician's fee will be made. Opportunity will also be given to obtain the booster dose that is required one year later, as well as any further booster doses as recommended by recognized medical authorities.



*Some of the buildings of the Veterinary College: Schurman Hall, administration; the Flower Library; and the Walter L. Williams Clinic.*

### 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. No person will be admitted to any advanced class except at the beginning of the college year in September.

### 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: Biological Sciences* and apply to the dean of the Graduate School.

## 20 Admission and Entrance Requirements

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 Examination (Aptitude Test) except in cases where this Examination is not given in reasonable proximity to the student's home. Where the Graduate Record Examination is not available the student is requested to submit, instead, the results of the College Entrance Board 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. 35-51 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.<sup>1</sup>

### The Degree of Doctor of Science in Veterinary Medicine (D.Sc. in V.M.)

Admission to candidacy for the degree of Doctor of Science in Veterinary Medicine 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<sup>2</sup> 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.<sup>3</sup> 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 candi-

1. By action of the Faculty, January 28, 1955.

2. In special cases other languages may be accepted according to the provisions of Paragraphs 118 and 119 of the *Code of Legislation* of the Graduate School Faculty.

3. 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.

date'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.

### Seminars

The several departments of the College hold seminars or special conferences for their advanced and graduate students. The seminar hears reports on investigations in a particular field and discusses methods of advanced and independent work of students and other researchers. By means of the seminar the student incidentally gains facility in public speaking which enables him to take a creditable part in the meetings of veterinary or human medical societies.

### Combined Courses

By judicious planning, students who do their preveterinary work in the College of Agriculture 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.

## 22 Admission and Entrance Requirements

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 is required to register with the registrar of the University at the beginning of each term. (See the Academic Calendar for the day of registration.) After completing that registration, he must register with the director of Student Administration of the Veterinary College. This *must* be done before the close of the regular registration day unless the student has received special permission from the director.



# Expenses

## Tuition

Tuition is \$200 per term for students in the Veterinary College who are and have been bona fide residents of the state of New York for at least twelve months immediately prior to the registration day of each term of the academic year.

Tuition is \$300 per term 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.

## The General Fee

For certain services and privileges the University charges students who are not residents of New York State a General Fee of \$337.50 each term over and above tuition. For students who are residents of New York State, this fee is \$237.50 each term over and above tuition.

This General Fee is paid by all students in the Divisions at Ithaca, the amount varying in the different schools and colleges. It contributes toward the services supplied by the libraries, the Gannett Clinic, the Sage Infirmary, and the student union in Willard Straight Hall, pays a portion of the extra costs of laboratory courses and general administration, and supports programs of physical recreation and student activities.

Tuition and fees become due before registration for each term. Any student who fails to pay tuition charges, fees, or other indebtedness to the University may be dropped from the University unless the treasurer has granted an extension of time to complete payment. For such extension the student is assessed a fee of \$5. A fee of \$10 is charged for late payment when no extension has been granted. For further information, consult the *Announcement of General Information* (obtained by writing to Cornell University Announcements, Day Hall).

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

## Charges for Minor Delinquencies

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 Treasurer's Office, are levied in certain circumstances, under the following rules of the University:

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.

## 24 Financial Aids

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.

A student desiring to take an examination or other test for the removal of a term mark of "absent" or "incomplete" shall first pay a fee of \$2 for each examination or other test.

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.

## 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 \$1,400. 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

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. 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 charges for tuition and fees 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 the Veterinary College. Six scholarships of \$600 each are available.

**TUITION SCHOLARSHIPS.** The trustees have authorized a limited number of scholarships, each of an annual value sufficient to cover the cost of tuition, 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.

**YONKERS RACEWAY FOUNDATION SCHOLARSHIP.** By action of the executive committee of the Yonkers Raceway Foundation, an endowed scholarship of \$350 was established at the Veterinary College to be awarded by the Committee on Scholarships of the College to a needy student who is a resident of New York State. The same criteria will be used in awarding this scholarship as are used in selecting the candidates for the Valentine Mott Knapp scholarship.

**MARIE HEYE CLEMENS FOUNDATIONS SCHOLARSHIP.** A fund was established in 1965 to support one or more scholarships for students in the New York State Veterinary College. First preference will be given to needy and worthy scholarship candidates entering their final year of study. As an effort to perpetuate the award, the scholarship committee encourages recipients to return part or all of their scholarship awards as alumni gifts

## 26 Financial Aids

to the Scholarship Fund at such time as they are financially able to do so. (\$500.)

**IRENE HEINZ GIVEN AND JOHN LA PORTE 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** 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.

**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** was established as a prize in 1965 and became a scholarship in 1969. The scholarship is awarded to a third-year veterinary student, for use in the fourth year, 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.

## Prizes

Cornell University has been given a considerable number of funds for the endowment of prizes to be awarded annually to enrolled students. Some of these prizes are open to competition by students of the University generally. The University publishes a list of them and requests for copies should be addressed to the Office of the Dean of the University Faculty, Day Hall.

Prizes open to competition only by students of the Veterinary College follow.

**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. Two annual prizes are 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

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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 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 Wells Miller 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.

## Health Services and Medical Care

Health services and medical care for students are centered in two Cornell facilities: the Gannett Medical Clinic (out-patient department), 10 Central Avenue, and the Sage Infirmary. The Infirmary is on Sage Place, with the entrance 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 coming 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 in the General Fee.

**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.

On a voluntary basis, insurance is available to supplement the services provided by the General Fee. For further details, including charges for special services, see the *Announcement of General Information*.

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.

## Housing and Dining Facilities

### University Housing

#### Undergraduate Men and Women

The University provides a variety of residence halls accommodating approximately 4,300 students. These halls are located on both the North Campus and the West Campus, areas so designated because of their geographical relationship to the Fall Creek gorge. For detailed information on the various housing accommodations, students should consult the *General Information Announcement*.

During their first year, all freshman men and women must live in University residence halls. Present indications are that, effective in the fall of 1971, all sophomore students may also be required to live in University housing facilities, which will include cooperatives, associations, fraternities, and sororities, as authorized by the University. Beyond the freshman or sophomore year, as the case may be, students are free to choose between privately owned off-campus housing or University residences.

## 30 Housing

Students transferring from other colleges or universities are not subject to a residence requirement unless they are classified as sophomores in September 1971.

Freshmen who are married, who are twenty-one years of age, or who reside with their parents within commuting distance of the campus may request exemption from the residence requirement by writing to the Office of the Dean of Students, Cornell University, Ithaca, New York 14850. Requests for exemption on the basis of other special circumstances should also be made in writing to that Office.

Application forms for University residence halls will be mailed automatically by the Office of Admissions to each candidate for admission as a freshman or transfer student at the time of notification of provisional acceptance to the University.

### Graduate Students

The University has two residence halls for graduate students. The Sage Graduate Center accommodates 190 men and women; Cascadilla Hall houses 155 men and women. The dining service in the Sage Graduate Center is available to all graduate students and faculty. Graduate Students who wish to apply for housing should write to the Department of Housing and Dining Services, 223 Day Hall, when their plans to enter the University are complete.

### Married Students

Unfurnished apartments for 420 married students and their families are provided by Cornell in the Cornell Quarters (81 apartments), Pleasant Grove (94 apartments), and Hasbrouck (245 apartments).

### Off-Campus Housing

Because changes of available accommodations occur daily, it is not practical to prepare lists, but students may find it helpful to check the bulletin board in the Off-Campus Housing Office, 223 Day Hall. If possible, a student should make at least one trip to Ithaca to look over the available apartments and houses before he plans to take up residence.

DETAILED INFORMATION on all types of housing for students may be obtained by writing to the Department of Housing and Dining Services, Day Hall.

### Dining Facilities

Cornell has no formal dining requirements for its students; they may eat where, when, and what they choose whether or not they live in University residence halls. The University maintains a number of public dining units in various convenient places on the campus.



Optional dining plans are offered for students who may wish to prepay some of their board costs rather than paying cash for each meal. The plans are designed with flexibility, taking into account students' habits and schedules as well as convenience and economics. Details of dining arrangements are described in *A Guide to Student Dining*, which will be mailed with room assignments.

## The Conduct of Students

At all times and in all relationships a Cornell student is expected to conduct himself in a decent and respectable manner and in accordance with the obligation recognized by the student body of unfailing 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 conduct upon the students rather than the faculty. 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.

A faculty consultant and the Veterinary Faculty Committee on Student Conduct are available to veterinary students for consultation and guidance and in occasional instances for referral of disciplinary cases beyond the jurisdiction of the Student Honor Code.

## Requirements for Graduation

The prescribed four-year curriculum leading to the degree of Doctor of Veterinary Medicine (DVM) is summarized in the section below. To receive this degree candidates must satisfy all the entrance requirements (pp. 16-19), must successfully pursue 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 June. 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. Unsatisfactory students will be dropped from the College.

## The Curriculum

In the following summary of the curriculum, the figure in the first column after the name of the course is the number of the course and refers to a description on one of the following pages: 35-51. The figures in the second and third columns indicate the hours of credit given for the successful pursuit of the several courses in either term. 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>Course Number</i>	<i>Fall term Credit</i>	<i>Spring term Credit</i>
Livestock Management .....	101	3	—
Anatomy .....	501	7	—
Developmental Anatomy and Histology .....	507	4	—
Mammalian Biochemistry .....	510	6	—
Clinical Orientation .....	590	1	—
Animal Feeding .....	311	—	3
Anatomy .....	502	—	6
Neuroanatomy .....	505	—	2
Microscopic Anatomy .....	508	—	4
Physiology .....	511	—	5
Clinical Orientation .....	591	—	1
		<hr/>	<hr/>
Total .....		21	21

## Second Year

	<i>Course Number</i>	<i>Fall term Credit</i>	<i>Spring term Credit</i>
Animal Genetics .....	424	2	—
Physiology .....	611	4	—
Applied Radiation Biology .....	621	1	—
General Pathology .....	630	2	—
General Pathology Laboratory .....	631	2	—
Bacteriology and Immunology .....	640	4	—
Bacteriology and Immunology Laboratory .....	641	5	—
Pharmacology .....	612	—	6
Toxicology .....	613	—	1
Special Pathology .....	632	—	2
Special Pathology Laboratory .....	633	—	2
Food Quality Control .....	634	—	3
Animal Parasitology .....	635	—	2
Clinical Pathology .....	636	—	2
Obstetrics .....	671	—	3
		<hr/>	<hr/>
Total .....		20	21

## Third Year

	<i>Course Number</i>	<i>Fall term Credit</i>	<i>Spring term Credit</i>
Applied Anatomy .....	703	1	—
Food Quality Control .....	730	2	—
Applied Parasitology .....	731	3	—
Epidemiological Methods .....	740	2	—
Small Animal Medicine .....	760	3	—
Obstetrics .....	770	3	—
Diseases of Large Animals .....	771	4	—
General Surgery .....	773	4	—
Surgical Exercises .....	774	1	—
Roentgenology .....	776	1	—
Applied Anatomy .....	704	—	1
Infectious Diseases .....	741	—	3
Diseases of Poultry .....	750	—	3
Small Animal Medicine .....	761	—	3
Small Animal Surgery .....	762	—	4
Surgical Exercises .....	763	—	1
Diseases of Large Animals .....	772	—	2
Special Surgery .....	775	—	5
Roentgenology .....	777	—	1
Clinical Orientation .....	791	—	1
		<hr/>	<hr/>
Total .....		24	24

### 34 Requirements for Graduation

#### Fourth Year

	<i>Course Number</i>	<i>Fall term Credit</i>	<i>Spring term Credit</i>
Ophthalmology .....	860	1	—
Diseases of Large Animals .....	870	4	—
Clinics:			
Small Animal .....	890	4	—
Large Animal .....	892	4	—
Ambulatory .....	894	4	—
Ancillary .....	896	4	—
Senior Seminar .....	898	Req.	—
Diseases of Large Animals .....	871	—	4
Jurisprudence, Ethics, and Business Methods .....	872	—	1
Clinics:			
Small Animal .....	891	—	4
Large Animal .....	893	—	4
Ambulatory .....	895	—	4
Ancillary .....	897	—	4
Senior Seminar .....	899	—	Req.
		<hr/>	<hr/>
Total .....		21	21

## Description of Courses

In the following pages a list of the teaching departments of the College is given. Under each department heading, brief descriptions of the courses offered will be found. Most of these courses are a part of the veterinary curriculum; a few 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, following the departmental descriptions. Finally, there is a listing of courses given by other colleges as a part of the veterinary curriculum.

For courses in other colleges available to all Cornell students consult the appropriate college *Announcement*.

### Anatomy

Professors R. E. Habel, H. E. Evans; Associate Professors A. de Lahunta, W. O. Sack; Assistant Professor J. F. Cummings; Assistants F. Wu, M. A. Dore.

**501 Gross Anatomy.** First year, fall term. Credit seven hours. Prerequisite, course work equivalent to that required for admission to the Veterinary College. Lecture, M W 9:05. Laboratory, M W Th 10:10-1:10. Professor Evans. Associate Professor de Lahunta, Assistant Dore.

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.

**502 Gross Anatomy.** First year, spring term. Credit six hours. Prerequisite, Anatomy 501. Lecture, W 9:05. Laboratory, M T W Th F 2-4:25. Associate Professor Sack, Assistant Dore.

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.

**505 Neuroanatomy.** First year, spring term. Credit two hours. T 9:05, W 10:10-12:35. Associate Professor de Lahunta.

The nervous system of domestic animals is studied by functional systems. Clinical cases with pertinent lesions are demonstrated with each system.

**507 Developmental Anatomy and Histology.** First year, fall term. Credit four hours. Prerequisites, course work equivalent to that required for admission to the Veterinary College, plus completion of or concurrent registration in Veterinary Anatomy 501 or 900. A limited number of nonveterinary students will be admitted by permission of the instructor. Lectures, T Th 9:05. Laboratory, W F 2-4:25. Associate Professor de Lahunta, Assistant Professor Cummings, Assistant Wu.

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.

**508 Microscopic Anatomy.** First year, spring term. Credit four hours. Prerequisites, Veterinary Anatomy 507, plus completion of or concurrent registration in Veterinary Anatomy 502 or 900. A limited number of nonveterinary students will be admitted by permission of the instructor. Lectures, M F 9:05. Laboratory, M F 10:10-12:35. Assistant Professor Cummings, Assistant Wu.

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.

**605-606 Advanced Anatomy.** Fall term. Hours and credit to be arranged. Spring term. Hours and credit to be arranged. Prerequisites, Anatomy 501, 502, 507, and 508 or similar preparation in comparative anatomy and histology. Professors Habel and Evans, Associate Professors Sack and de Lahunta, Assistant Professor Cummings.

An opportunity for advanced study under personal direction.

**703-704 Applied Anatomy.** Third year, fall term. Credit one hour. Laboratory, T 10:10-12:35 or Th 10:10-12:35 or S 9:05-11:30. Professor Habel. Third year, spring term. Credit one hour. Laboratory, T 2-4:25 or Th 2-4:25. Professor Habel.

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

**900 Vertebrate Morphology.** Fall term. Credit three hours. Prerequisite, zoology or biology. Laboratory, W F 1:10-4:25. Professor 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 are also presented. Demonstrations, films, and student presentations are included throughout the term.

## Physiology, Biochemistry, and Pharmacology

Professors A. F. Sellers, E. N. Bergman, C. E. Stevens, A. Dobson, J. F. Wootton; Associate Professor A. L. Aronson; Assistant Professor W. J. Arion; Assistants P. Carlson, W. Chien, C. F. Kaufman, G. A. Maylin, J. Wolff.

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

**510 Mammalian Biochemistry.** First year, fall term. Credit six hours. Prerequisites, course work equivalent to that required for admission to the Veterinary College. A course in quantitative analysis, and additional hours

of organic chemistry would be helpful. Lectures and recitations, M W 8, Th 2-4:25, F 9:05. Laboratories, M T 2-4:25. Professor Wootton, Assistant Professor Arion, and assistants.

This course in general biochemistry emphasizes the mammalian system. The laboratory is devoted to study of the chemical properties of biological materials and also to instilling a working knowledge of the elements of quantitative analysis, which is necessary for the performance of clinical biochemical determinations.

**511 Physiology for Veterinary Students.** First year, spring term. Credit five hours. Prerequisites, Physiology 510, Anatomy 501 and 502, or Anatomy 900 or Zoology 311 and Biochemistry 433. Lecture, T Th F 8. Laboratory, Th 9:05-12:35, Professor Stevens and assistants.

**611 Physiology for Veterinary Students.** Second year, fall term. Credit four hours. Prerequisite, Physiology 511. Lecture, T Th F 8. Laboratory, Th, 9:05-12:35. Professors Bergman and Sellers.

**612 Pharmacology.** Second year, spring term. Credit six hours. Prerequisites, Anatomy 501, 502, 505, 507, 508; Physiology 510, 511, 611; Pathology 630 and 631 or consent of the instructors. Lectures, T 8, W 9:05, F 9:05. Laboratory, M 11:15-4:25. Conference, M 8. Associate Professor Aronson.

The primary emphasis of this course is on the physiological disposition and mechanism of action of drugs.

**613 Toxicology.** Second year, spring term. Credit one hour. Prerequisites, same as for Pharmacology 612. Lecture, M 9:05. Associate Professor Aronson.

The basic aspects of some of the more common poisonings that affect domestic animals will be considered. Emphasis will be placed on heavy metal poisonings, chelation phenomena, selected organic poisonings, pesticide poisonings, and forensic considerations.

**910 Special Problems in Physiology.** Fall term. Hours to be arranged. Registration by permission.

**911 Special Problems in Physiology.** Spring term. Hours to be arranged. Registration by permission.

Laboratory work, conferences, collateral reading, and reports, adapted to the needs of students.

## 38 Physical Biology

**912 Research.** Fall term. Graduate students only. Hours to be arranged.

**913 Research.** Spring term. Graduate students only. Hours to be arranged.

**915 Methods in Physiological Research.** Spring term. Alternate years. Credit four hours. Prerequisites, Biological Sciences 414 and a course in biochemistry, or Veterinary Medicine 611, or equivalent, and consent of the instructor. Enrollment limited. Two lectures and one six-hour laboratory per week, time to be arranged. Professor Sellers and staff.

Emphasis will be on the principles and application of physiological methods for measurement of organ and tissue functions related to digestion, absorption, distribution, metabolism, and excretion.

**916 Physiologic Disposition of Drugs and Poisons.** Spring term. Credit three hours. Prerequisites, a course in biochemistry and consent of the instructor. M W F 10:10, Associate Professor Aronson. Offered in spring term 1971.

Lectures on the absorption, distribution, metabolism, excretion and selective toxicity of drugs, as well as consideration of environmental aspects of the problem of toxicology.

**917 Physiology.** Spring term. Credit three hours. For graduate students. Prerequisites, Physiology 510, Anatomy 501 and 502, or Anatomy 900 or Zoology 311, and Biochemistry 433. T Th F 8. Professors Bergman, Sellers, and Stevens.

Lectures and demonstrations on cellular physiology, muscle, nervous system, digestive system, urine secretion, blood, and lymph.

**918 Physiology.** Fall term. Credit three hours. For graduate students. Prerequisite, Physiology 917. T Th F 8. Professors Bergman and Sellers.

Lectures and demonstrations on circulation, respiration, endocrine organs, temperature regulation, and reproduction.

## Physical Biology

Professors C. L. Comar, E. L. Gasteiger, F. W. Lengemann, D. N. Tapper, R. H. Wasserman; Associate Professors A. P. Casarett, P. H. Craig, L. L. Nangeroni, J. C. Thompson, Jr.; Assistant Professor F. A. Kallfelz; Senior Research Associates F. L. Hiltz, H. Moraff, A. N. Taylor, R. A. Wentworth; Research Associates R. A. Corradino, R. Z. Korman; Graduate Assistants J. Balaban, P. J. Brederman, R. H. Bubar, J. Faull, L. L. Lippiello, M. Mann, F. Jacobson, E. J. Parker, M. B.

Snipes, S. D. Talisayon; Postdoctoral Fellow P. B. Brown.

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

**621 Applied Radiation Biology.** Second year, fall term. Credit one hour. W 9:05. Assistant Professor Kallfelz.

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

**921 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. Professor Lengemann and staff.

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

**922 Biological Effects of Radiation.** Fall term. Credit three hours. T Th 10:10. Laboratory, Th 1:30-4:25. Associate Professor 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.

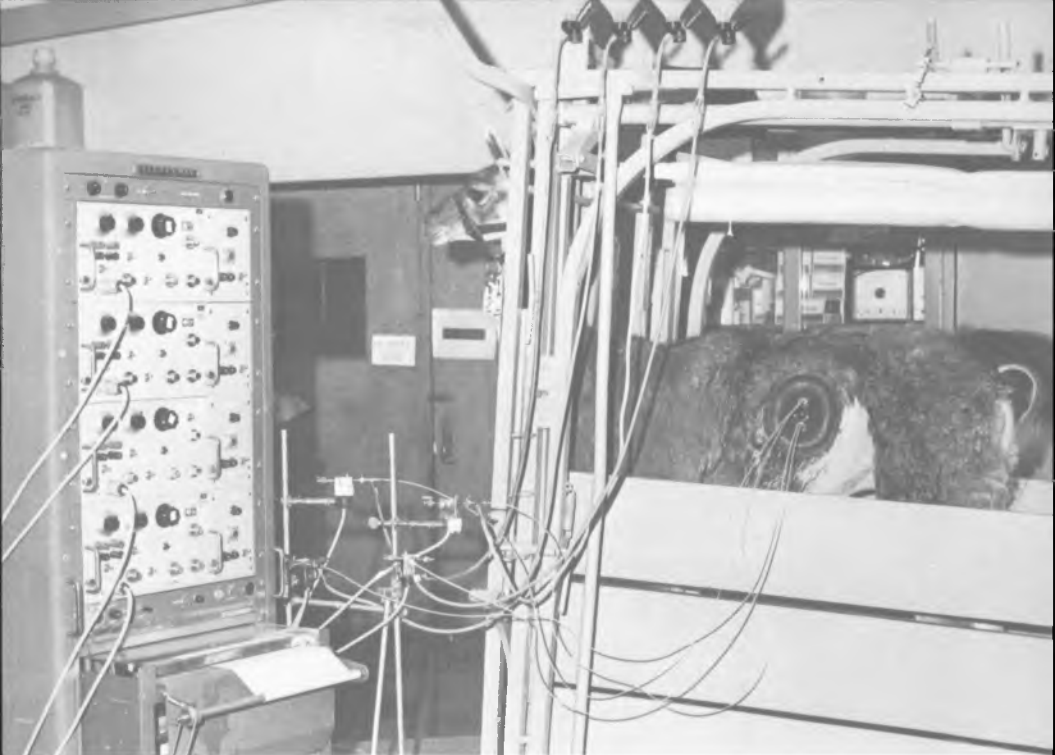
**923 Biological Membranes and Nutrient Transfer.** Spring term. Credit two hours. Prerequisites, animal or plant physiology, quantitative and organic chemistry, physics, and consent of the instructor. Cellular physiology and elementary physical chemistry desirable. Lectures (time to be designated).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

**924 Functional Organizations of the Nervous System.** Fall term. Credit three hours for lecture; two hours for laboratory. Prerequisites, physiology, organic chemistry, physics, and/or consent of the instructor. Physical chemistry and neuroanatomy desirable. Lectures, M W F 10:10. Laboratory, W afternoon biweekly. Professor Gasteiger.

Function of the nervous system will be considered primarily from an electrophysiological viewpoint. Where appropriate, impor-





*The Guanaco is a nondomesticated member of the New World Camelidnae. This group of animals, which includes the llama, alpaca, and vicuña, are indigenous to certain areas of South America where they are capable of living at extremely high altitudes. They also appear to have a more efficient digestive system than the cow and sheep. These animals are being studied to determine their mechanisms of digestion.*

tant studies of reflexology, chemical and feedback control, and comparative anatomy will be utilized. Laboratory studies will include electrical activity of cells, reflexes, decerebrate rigidity, acoustic microphonic response, subcortical stimulation, and evoked and spontaneous cortical activity.

**925 Physical Biology. Physiology, Biochemistry and Biophysics of Mineralized Tissue (Special Topics).** 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. Instructors: Comar, Corradino, Craig, Taylor and 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.

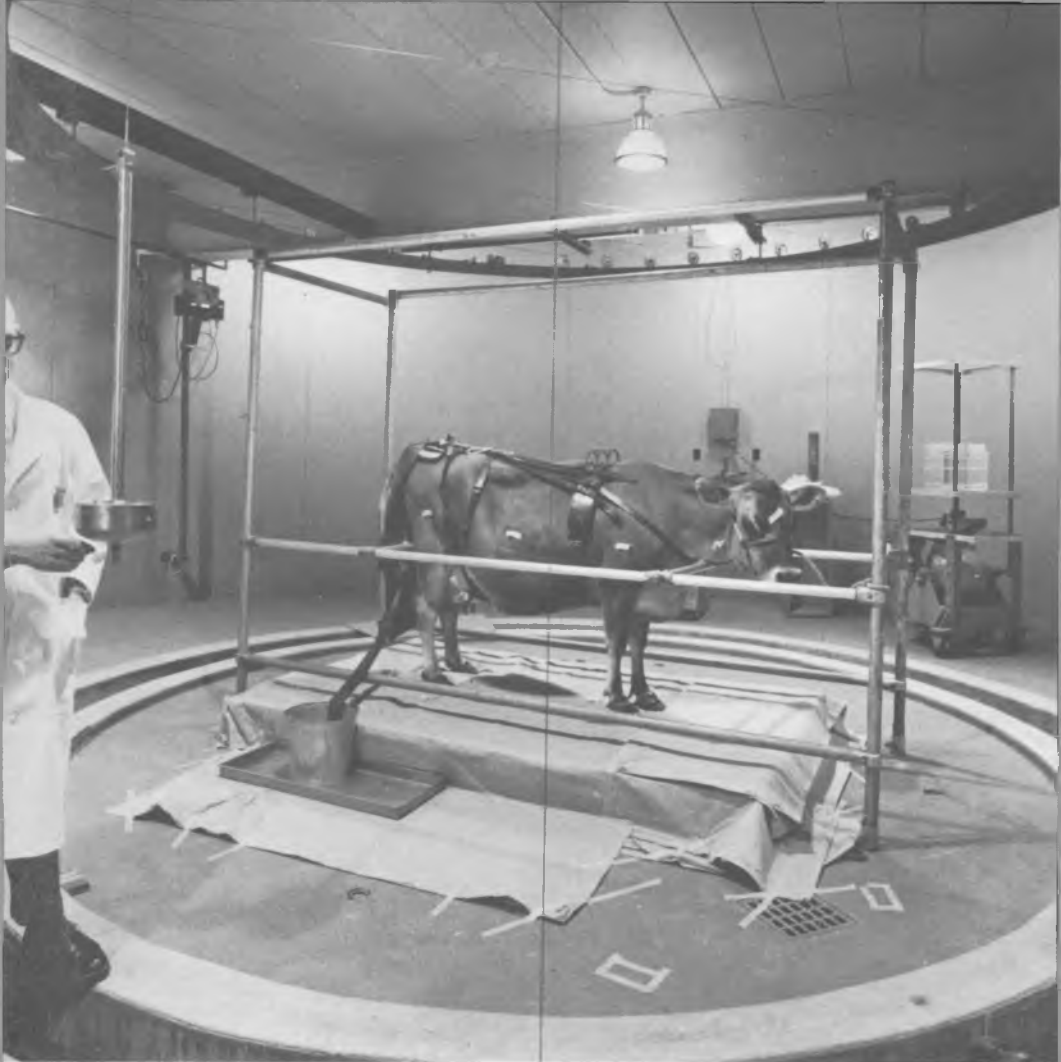
**926 Physical Biology Graduate Seminar.** Fall and spring terms. Credit one hour. Professor Comar and staff.

**927 Seminar—Special Topics in Physical and Radiation Biology.** Fall and spring terms. Credit hours variable. Associate Professor Casarett.

**928 Experimental Physiology for Graduate Students.** Fall term. Credit three hours. Prerequisites, 510, 501, and 502, or 900, or Biological Sciences 321–322 and Biochemistry 401. Co-registration in 610 and consent of the instructor are required. Registration limited. Associate Professor Nangeroni.

**427 Sensory Function (Biological Sciences).** Fall term. Credit three hours. Prerequisite, Biology 320 or equivalent. One hour lectures, T Th 10:10. Given cooperatively with Cornell's Division of Biological Sciences. Professors Halpern (Arts and Sciences) and Tapper (Physical Biology).

Sensory receptors and the central nervous system transformation of afferent activity will be considered in relation to human and animal psychophysical data and to the adaptive significance of behavior. The receptor will be examined in terms of anatomy, biochemistry, biophysics to transduction, and the central nervous system control of peripheral input. Information and signal detection theories will be applied.



*A cow is being readied for study of low levels of radiation on milk secretion (Radiation Biology Field Laboratory, Department of Physical Biology).*

## Pathology

Professors C. G. Rickard, J. H. Whitlock, C. I. Boyer, Jr., L. P. Krook, F. Noronha, J. R. Georgi; Associate Professors J. E. Post, L. Coggins, J. M. King; Senior Research Associates W. J. Sickles, F. E. Waterman, E. Dougherty III, A. L. Britt, R. W. Dellers; Research Associate B. A. Coote; Director of the Diagnostic Laboratory S. R. Nusbaum; Interne J. M. Armstrong; Assistants T. T. Brown, Jr., L. S. Uhazy, C. Hong, T. Ubertini; Also R. Ochoa, J. O. Hincapie.

The Department is well equipped with modern facilities to provide opportunity for advanced work in gross and microscopic pathology, immunopathology, parasitology, nutritional pathology, laboratory animal pa-

thology, 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 600 and 700 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 in each case.

**630 General Pathology Lectures.** Second year, fall term. Credit two hours. Prerequisites, Anatomy 507 and 508 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. M F 9:05. Professor Rickard.

The course consists of 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.

**631 General Pathology Laboratory.** Second year, fall term. Credit two hours. Prerequisite, course 630, taken previously or concurrently. Section I, M F 10:10-12:35. Section II, T 10:10-12:35, S 9:05-11:30. Professor Rickard.

**632 Special Pathology Lectures.** Second year, spring term. Credit two hours. Prerequisite, course 630. T Th 9:05. Associate Professor 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.

**633 Special Pathology Laboratory.** Second year, spring term. Credit two hours. Prerequisite, course 632, taken previously or concurrently. T 2-4:25, F 10:10-12:35. Associate Professor King.

**634 Food Quality Control.** Second year, spring term. Credit three hours. Lecture, M 10:10, Th 8. Laboratory, T 10:10-12:35. Professors White and Baker.

**635 Animal Parasitology.** Second year, spring term. Credit two hours. Prerequisite, zoology or biology. Lecture, Th 10:10. Laboratory, Th 2-4:25. Professor Whitlock.

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.

**Clinical Pathology.** Professors Bentinck-Smith and Tasker.

See *Clinical Courses, course 636.*

**730 Food Quality Control.** Third year, fall term. Credit two hours. Lecture, F 11:15. Laboratory, F 2-4:25. Professors White and Baker.

Veterinary inspection to control quality and wholesomeness of meat, meat food, dairy, fish, and poultry products; and to study dairy farms and plants in which these products are produced, processed, manufactured, stored, etc. Certain parts of the course are given by members of the Departments of Poultry Husbandry, Dairy and Food Science, and Animal Husbandry of the College of Agriculture, and the Department of Large Animal Medicine, Obstetrics and Surgery of the Veterinary College.

**731 Applied Parasitology.** Third year, fall term. Credit three hours. Prerequisite, course 635 or equivalent. Lecture, M 10:10, T 1:10. Laboratory, Section A, W 2-4:25; Section B, T 2-4:25; Section C, Th 10:10-12:35. Professor Georgi.

An organized study of the features of domestic animals with particular emphasis on the features of diagnostic importance. Special attention will be given to the laboratory and postmortem techniques that are of value in applied parasitology.

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

**931 Pathology of Nutritional Diseases.** Spring term. Credit three hours. Lecture and laboratory. Prerequisites, 630 and 631. Hours to be arranged. Designed primarily for graduate students of nutrition. Professor Krook.

**932 Advanced Work in Animal Parasitology.** Fall term. Credit one to three hours, by arrangement.

**933 Advanced Work in Animal Parasitology.** Spring term. Credit one to three hours, by arrangement. Prerequisite, course 635. For advanced undergraduate and graduate students. Professors Whitlock and Georgi.

Special problems concerned with the parasites of domestic animals.

**934 Laboratory Methods of Diagnosis.** Fall term. Credit one to three hours, by arrangement.

**935 Laboratory Methods of Diagnosis.** Spring term. Credit one to three hours, by arrangement. Prerequisites, courses 632 and 641 or 340. Graduate students.

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

**936 Advanced Work in Pathology.** Fall term. Credit one to three hours, by arrangement.



**937 Advanced Work in Pathology.** Spring term. Credit one to three hours, by arrangement.

Properly prepared students may undertake special problems or receive special assignments.

**938 Reproductive Pathology.** Fall term. Credit two hours. Lecture and laboratory. Prerequisites, courses 630, 631, 632, and 633. Hours to be arranged. Professor McEntee.

**939 Introduction to Laboratory Animal Medicine.** Spring term of even-numbered years. Credit two hours. Prerequisite, permission of the instructor. Lecture and demonstration, M 1-4:25. Professor Boyer and staff.

An introduction to management and disease control in the 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. The course provides a survey of preventive medicine, the common diseases, and important aspects of comparative anatomy, ecology, behavior, and genetics.

## Microbiology

Professors D. W. Bruner, G. C. Poppensiek, J. A. Baker, L. E. Carmichael, J. H. Gillespie, N. L. Norcross, B. E. Sheffy, A. J. Winter; Associate Professors M. J. G. Appel, S. G. Campbell, R. F. Kahrs, K. M. Lee; Assistant Professors G. Lust, F. W. Scott; Research Associates C. G. Fabricant, D. F. Holmes; Assistants D. A. Bemis, D. H. Davies, J. M. Gaskin, D. C. Mills.

Courses 640, 641, 740, and 741 are required in the 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 and to undergraduate students who have obtained the proper prerequisite training. Permission to register must be obtained.*

**340 Pathogenic Bacteriology.** Spring term of odd years. Credit four hours. T Th 1-4:25. Professors Gillespie and Winter.

Includes microbiology, virology, and immunology.

**640 Bacteriology and Immunology.** Second year, fall term. Credit four hours. M T W Th

1:10. Professors Bruner, Baker, and Carmichael.

Includes general and pathological microbiology, virology, and immunology.

**641 Bacteriology and Immunology Laboratory.** Second year, fall term. Credit five hours. M T W Th F 2-4:25. Associate Professor Campbell, Professor Carmichael, and assistants.

Open to students who have taken or are taking course 640 or its equivalent.

**740 Epidemiological Methods.** Third year, fall term. Credit two hours. W F 10:10. Associate Professor Kahrs.

A lecture course dealing with health and disease from a herd, flock, community, or population standpoint and emphasizing the use of knowledge about etiology, transmission, and distribution of disease in the development of preventive measures and control programs.

**741 Infectious Diseases.** Third year, spring term. Credit three hours. Prerequisites, courses 632 and 640. M W F 10:10. Professor Poppensiek and Associate Professor Kahrs.

**941 Serology.** Spring term of even years. Credit two hours. Prerequisites, courses 340 or 640, and 641. Limited to *eight* students with preference given to graduate students. Permission to register must be obtained before the end of the preceding (fall) term. T 2-4:25, and one hour to be arranged. Professor Bruner and Associate Professor Campbell.

Includes complement fixation, conglutination complement absorption, hemagglutination inhibition, precipitation, fluorescent antibody technics, neonatal isoerythrolysis, and the antigenic analysis of *Salmonella* cultures.

**942-943 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.

**944 Immunochemistry.** Spring term of even years. Credit three hours. Registration by permission. Lecture and laboratory. Hours to be arranged. Professor Norcross.

Lecture topics include quantitative aspects of the antibody-antigen reaction, physical and chemical properties of antibodies and antigens, the mechanisms of hypersensitivity, and tissue immunity. Laboratory experiments illustrate the phenomena covered in the lectures and familiarize the student with selected immunochemical technics.



**945 Animal Virology and Tissue Culture Methods.** Spring term of odd years. Credit one to four hours, by arrangement. Three credit hours for two lectures and one discussion section; one credit hour for one laboratory period. Courses 340 or 630 and 640 are considered prerequisites, except under special circumstances. Permission to register required. M W 1:10-4:25. Associate Professor Lee and Professor Carmichael.

Lectures will include the biology of animal viruses with emphasis on topics of general significance. Laboratory exercises emphasize methods of tissue culture preservation of cell lines, and the application of tissue culture methods to virology.

**946 Microbiology Seminar.** Fall and spring terms. No credit. Required of all graduate students. Undergraduate students are admitted. Th 11:15-12:05. Assistant Professor Scott.

**947-948 Laboratory Methods of Diagnosis.** Fall term. Credit one to three hours, by arrangement. Spring term. Credit one to three hours, by arrangement. Prerequisites, course 340 or 633 and 641.

Instructions and practice in the application of bacteriological, and serological methods for the diagnosis of disease.

## Avian Diseases

Professors S. B. Hitchner, P. P. Levine, J. Fabricant, M. C. Peckham, B. W. Calnek; Assistant G. A. Berkhoff.

The department maintains a poultry disease diagnostic clinic at the college and four 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 poultry disease research laboratory on Snyder Hill provide opportunities for advanced study for properly qualified students. A respiratory disease-free breeding flock and a poultry disease isolation building are available for studies on most infectious and other diseases of poultry.

**750 Diseases of Poultry.** Third year, spring term. Credit three hours. Required of veterinary students. T Th 10:10, F 2-4:25. Professor Levine.

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.

**450 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 2-4:25.

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.

## Small Animal Medicine and Surgery

Professor R. W. Kirk; Associate Professors G. E. Ross, Jr., T. H. Brasmer; Assistant Professors S. I. Bistner, G. A. Bolton; Resident M. D. Lorenz; Internes P. S. Olson, M. E. Orman, E. J. Trotter.

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

**760 Small Animal Medicine.** Fall term. Credit three hours M W 11:15, Th 9:05. Professor Kirk.

**761 Small Animal Medicine.** Third year, spring term. Credit three hours. Prerequisite, Special Pathology, Pharmacology, and Clinical Pathology. T W 11:15, F 9:9:05. Professor Kirk.

**762 Small Animal Surgery.** Third year, spring term. Credit four hours. Prerequisite, Special Pathology. M W Th F 8. Associate Professors Ross and Brasmer.

**763 Surgical Exercises.** Third year, fall term. Credit one hour. M T W or Th 2-4:25. Associate Professors Ross and Brasmer.

**773 General Surgery.** Third year, fall term. Credit four hours. Prerequisite, Special Pathology. Lecture, M W F 9:05. Associate Professor Ross.

**860 Small Animal Ophthalmology.** Fourth year, fall term. Credit one hour. W 8:00. Assistant Professor Bistner.

**960-961 Advanced Work.** Fall and spring terms respectively. Five or more hours a week throughout the term. Professor Kirk, Associate



*Students learn about poultry diseases from cases submitted to the diagnostic laboratory.*

Professors Ross and Brasmer, Assistant Professor Bistner.

Research in medicine and surgery of small animals.

## Large Animal Medicine, Obstetrics, and Surgery

Professors K. McEntee, S. J. Roberts, F. H. Fox, T. Vaughan, D. D. Delahanty, A. J. Winter, J. C. Geary, G. R. Bjorck, N. L. Norcross; Associate Professors H. F. Schryver, N. B. Haynes, R. B. Hillman, J. E. Lowe, D. Postle, R. F. Kahrs, C. E. Hall; Assistant Professors H. F. Hintz, R. Whitlock, F. McCashin; Senior Research Associate H. O. Dunn; Research Associate K. Burda; Supervising Veterinarian R. S. Guthrie; Field Veterinarian L. F. Field; Surgical Residents R. L. Higginbotham, K. L. Twisselmann; Medical Internes J. Woodworth, J. O. Olson, A. D. McCauley; Surgical Internes E. J. Wiebe; Farrier H. G. Mowers; X-Ray Technician 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 being 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, etc.





*Students gain experience and practical training by working with cases. Here a student (left) and an x-ray technician position an anesthetized patient for radiographic studies.*

## 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 671, 770, 771, 772, 870, and 871.

## Classroom Work in Large Animal Surgery

Course 773 (General Surgery), course 630 (General Pathology), and course 774 (Large Animal Surgical Exercises) together constitute a group designed to impart a general knowledge of the principles of surgery, surgical pathology, therapeutics, and operative technique.

Course 775, a total of seventy-five lectures and recitations, is devoted to the surgery of the various regions of the body and includes horseshoeing.

## 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, 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.



*Students examine a horse's teeth (Department of Large Animal Medicine, Obstetrics, and 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.

**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. Associate Professor Hall.

The causes and the nature of the common diseases of livestock are discussed. Emphasis is placed on the prevention and control of animal diseases.

**671 Obstetrics and Genital Diseases.** Second year, spring term. Credit three hours. Lectures, W F 8. Laboratory, F 2-4:25 or S 9:05-11:30. Professor Roberts.

Pregnancy diagnosis, diseases of the gestation period including teratology and abortion, parturition, dystocia, obstetrical operations, and postpartum diseases are presented.

**770 Obstetrics and Genital Diseases.** Third year, fall term. Credit three hours. Lectures,

M 8, T 9. Laboratory, M or Th 2-4:25. Professor Roberts.

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 are presented. Further clinical instruction in obstetrics and infertility is given in the ambulatory clinic, in the College dairy barn, and at a nearby abattoir in the third and fourth years.

**771 Diseases of Large Animals.** Third year, fall term. Credit four hours. T W Th F 8. Professor Fox.

**772 Diseases of Large Animals.** Third year, spring term. Credit two hours. T Th 11:15. Professor Fox.

Lectures or recitations covering physical diagnosis, therapeutics and some diseases of large animals.

**774 Large Animal Surgical Exercises.** Third year, fall term. Credit one hour. M T W Th 2-4:25.

Three hours a week of laboratory work in surgical operations upon anesthetized large animals.

**775 Special Surgery of Large Animals.** Third year, spring term. Credit five hours. M T W Th 9:05, F 11:15. Professor Delahanty.

**776-777 Fundamentals of Roentgenology.** Third year, spring term. Credit one hour. M 12:20. Professor Geary and staff.

Technique of operation of modern equipment, x-ray protection, darkroom procedure, and fundamentals of diagnosis.

**870 Diseases of Large Animals.** Fourth year, fall term. Credit four hours. M T Th F 8. Associate Professor Hillman.

**871 Diseases of Large Animals.** Fourth year, spring term. Credit four hours. M T W Th 8. Professor Fox and Associate Professor Hillman.

Professor Kingsbury of the Department of Botany gives lectures and field trips concerning poisonous plants.

**872 Jurisprudence, Ethics, and Business Methods.** Fourth year, spring term. Credit one hour. Associate Professor Haynes and associates.

Lectures on the principles of veterinary medical ethics; veterinary medical organization and various practiced topics related to veterinary practice management.

**970 Advanced Work in Reproductive Pathology and Bacteriology, Medicine, Obstetrics, and Surgery.** Fall term. Open to graduate students. Hours and credit to be arranged.

**971 Advanced Work in Reproductive Pathology and Bacteriology, Medicine, Obstetrics, and Surgery.** Spring term. Open to graduate students. Hours and credit to be arranged. Professors McEntee, Roberts, Fox, Delahanty, Winter; Associate Professor Schryver, Assistant Professor Hintz and Senior Research Associate Dunn.

Properly prepared students may undertake special problems or receive special assignments.

**Immunochemistry.** Associate Professor Norcross. See Department of Microbiology, course 944.

**Reproductive Pathology.** Professor McEntee. See Department of Pathology, course 938.

**Epidemiological Methods.** Assistant Professor Kahrs. See Department of Microbiology, course 740.

## 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, and equine nutrition in relation to bone and joint diseases. Opportunity is afforded for participation in the investigations by graduate students having acceptable preparation.

## The Clinical Courses

Professors McEntee, Roberts, Fox, Delahanty, Kirk, Vaughan, Bjorck, Bentinck-Smith, Tasker, Geary, Rickard, King, Hitchner, Peckham, Fabricant; Associate Professors Ross, Brasmer, Hillman, Lowe, Postle; Assistant Professors McCashin, Bistner, Whitlock, Bolton, Buratto; Surgical Residents Higginbotham, Twisselmann; Medical Resident Lorenz; Surgical Interns Wiebe, Taylor, Orman, Trotter; Medical Interns McCauley, P. Olsen, J. Olsen, Woodworth; Supervising Veterinarian Guthrie; Field Veterinarian Field.

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

## 50 Clinical Courses

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.

**636 Clinical Pathology.** Second year, spring term. Credit two hours. Prerequisite, courses 632 and 633, taken previously or concurrently. Students from other Colleges may be admitted by special permission without these prerequisites. Lecture, Th 11:15. Laboratory, Section I, W 10:10-12:35; Section II, W 2-4:25. Professors Bentinck-Smith and 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.

**790 Clinical Orientation.** Third year, fall term. W 12:20.

**791 Clinical Orientation.** Third year, spring term. M 11:15 and M T W or Th 2-4:25.

Methods of clinical examination will be demonstrated and selected cases from all the clinics will be presented and discussed.

**898 Senior Seminar.** Fourth year, fall term. F 12:20-1:10. Associate Professor Lowe in charge.

**899 Senior Seminar.** Fourth year, spring term. F 12:20-1:10. Associate Professor Lowe in charge.

These conferences will be attended by all members of the fourth-year class and by staff members representing not only the clinical but the preclinical or basic sciences as

well. 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.

**890 Small Animal Clinic.** Fourth year, fall term. Credit four hours.

**891 Small Animal Clinic.** Fourth year, spring term. Credit four hours.

**892 Large Animal Clinic.** Fourth year, fall term. Credit four hours.

**893 Large Animal Clinic.** Fourth year, spring term. Credit four hours.

**894 Ambulatory Clinic.** Fourth year, fall term. Credit four hours.

**895 Ambulatory Clinic.** Fourth year, spring term. Credit four hours.

**896 Clinics Ancillary.** Fourth year, fall term. Credit four hours.

**897 Clinics Ancillary.** Fourth year, spring term. Credit four hours.

These clinics operate daily by assignment, including nights and Sundays when necessary. Professors Kirk, Vaughan, Fox, Bentinck-Smith, respectively.

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 clinic 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.

## Courses in the Veterinary Curriculum Given by Other Divisions

### College of Agriculture

**101 Animal Science.** (Livestock Management) First year, fall term. Credit three hours. Lectures, T Th 8. Morrison 163. Laboratory, T 10:15-12:35. Livestock Pavilion. Associate Professor Elliot.

Distribution, significance, problems and practical management of commercially important classes of farm animals.

**311 Animal Science.** (Principles and Practice of Animal Feeding.) First year, spring term. Credit three hours. Lectures, M W 8. Morrison 163. Laboratory, T 10:10-12:35. Morrison 164. Associate Professor Hogue.

Consideration is given to the basic prin-

ciples of animal nutrition, nutritive requirements for various body functions; the identification, composition, and nutritive value of feeds, and the formulation of animal rations. The species covered include dairy cattle, beef cattle, sheep, swine, and horses; and there is some consideration of dogs, cats, and other small animals. Special emphasis is given to nutritional problems relating to animal health.

**424 Animal Genetics.** Second year, fall term. Credit two hours. For veterinary students only. Lecture, M 8, Morrison 163. Laboratory, W 10:10-12:35, Morrison 164 and 174. Associate Professor Van Vleck.

Principles of genetics; sex determination and sex linkage; inheritance of characteristics in domestic animals with special reference to lethal genes, genetic resistance to disease and quantitative characters; progeny testing, genetic relationships and inbreeding.

## 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. Recently, over 90 percent of Veterinary College graduates have gone into private practice generally in the employment of an experienced veterinarian for at least one year to gain experience.

### Salaried Positions

Salaried positions are available with state and federal governments, pharmaceutical manufactures, research institutions, universities, and a few large livestock farms. Generally these positions are filled from the ranks of private practitioners. Very few recent graduates have accepted salaried positions except in the armed forces.

### Private Corporations

Many veterinarians are employed by the large milk companies, by large stock and poultry farms, and by industrial laboratories that produce biologicals and pharmaceuticals for the prevention and treatment of diseases.

### Governmental Agencies

THE AGRICULTURAL RESEARCH SERVICE OF 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 also is 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 this Service are engaged in full-time research programs on diseases of animals of economic importance in well-equipped laboratories under the direction of the Animal Disease and Parasite Research Division.

**VETERINARY CORPS, UNITED STATES ARMY AND AIR FORCE.** Veterinarians who are physically qualified men 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 first lieutenant 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 diseases of animals 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 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.** Most cities employ graduate veterinarians on a full-time basis, and many towns and villages on a part-time basis, as members of their health departments. The duties of these men usually are connected with the sanitary control of meat and milk.

## Legal Requirements for Practice

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, Albany, N.Y. 12224. Examinations are given twice a year. Applicants are required to furnish evidence of adequate preprofessional as well as professional education, of good moral character, and of 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.



# Students, Veterinary College

## Graduate Students 1969-70

Addinger, Hans K., D.V.M., Germany  
Al-Aubaidi, Jawad M., B.V.M.S., M.S., Baghdad, Iraq  
Al-Khayyat, Ali Aziz, B.V.Sc., M.S., Baghdad, Iraq  
Balaban, Jerry G., B.A., New Jersey  
Bartholomew, Richard C., D.V.M., Vermont (Leave of absence)  
Berkhoff, German A., D.V.M., Santiago, Chili  
Braide, Victor B. C., D.V.M., Nigeria  
Bredderman, Paul, B.S., M.S., Greenville, New York  
Brown, Talmage T., D.V.M., B.S., Raleigh, North Carolina  
Bubar, Richard H., A.B., D.V.M., Urbana, Illinois  
Carlson, Pamela, B.S., Massachusetts  
Cowen, Barrett S., B.S., M.S., New Hampshire (Extra-mural)  
Csiza, Charles K., D.V.M., Quebec, Canada  
Dellers, Robert W., D.V.M., New York, New York  
Drake, Rosemarie, B.A., Peru  
Duncan, J. Robert, B.S.A., V.M.D., M.S., Guelph, Canada  
El-Attar, Abdallah F., B.V.Sc., Egypt  
Erickson, Eric D., D.V.M., Qualicum, British Columbia  
Fernando, W. W. Dennis, D.V.M., Ceylon  
Galera-Carcia, Cesar, B.S., Mexico  
Gaskin, Jack M., D.V.M., Watertown, New York  
Gewirtz, Myrna, B.S., M.S., Brooklyn, New York  
Higginbotham, Ronald L., D.V.M., Almira, Washington  
Hincapie, Jose O., D.V.M., Columbia  
Hirabayashi, Doris L., B.S., M.S., Youngstown, Ohio (Leave of absence)  
Holmes, Dorothy F., D.V.M., Groton, New York  
Hong, Chuen-Bin, B.V.Sc., China  
Hoover, Toby R., B.S., D.V.M., Oklahoma  
Hsu, Frank Sin-yun, B.S., China  
Jacobson, Frederick L., B.S., M.S., Oregon  
Jones, William O., B.S., D.V.M., South Carolina  
Kaufman, Charles F., A.B., D.V.M., New York, New York  
Kirkpatrick, Jay F., B.S., M.Ed., Pennsylvania  
LeJambre, Leo F., A.S., B.S., M.S., New Jersey  
Mann, Michael, B.A., New York, New York  
Maylin, George A., D.V.M., M.S., Ontario, Canada  
Menegus, Marilyn A., B.S., Clifton, New Jersey  
Munnell, John F., B.A., V.M.D., M.S., Iowa, (Leave of absence)  
Ochoa, Ricardo, D.V.M., Columbia  
Parker, Edward J., B.S., M.S., Oswego, New York

Parsonson, Ian M., B.V.Sc., Victoria, Australia  
Pickerill, Phillip A., D.V.M., Lake City, Iowa  
Russell, Harold, B.S., Atlanta, Georgia  
Searcy, Gene P., D.V.M., M.Sc., Guelph, Canada  
Snipes, Morris B., B.S., M.S., New Mexico  
Talisayon, Serafin, M.S., Philippines  
Thorlacius, Sigurberg, B.Sc., Canada  
Ubertini, Tito, D.V.M., Brescia, Italy  
Uhazy, Leslie S., M.S., Canada  
Valenas, Augusto, D.V.M., M.S., Lima, Peru  
Whitlock, Robert H., D.V.M., Pennsylvania  
Wilkie, Bruce, N., B.S.A., D.V.M., Canada  
Wolff, J. E., B.S., M.S., New Zealand  
Wright, Joseph, B.S., D.V.M., Texas  
Wu, Fu-Ming, B.V.M., Taiwan, China  
Young, Wan-Ju, B.V.M., China

## Fourth Year, Class of 1971

Aldridge, John Paul, Westwood, New Jersey  
Andre, Robert Louis, Lowville  
Baldwin, Charles Hartley, Huntington  
Banser, John Tanlaka, W. Cameroon, Africa  
Baum, Barry Michael, Bronx, New York City  
Bellinger, Robert Glenn, Hyndsville  
Bender, William Martin, Jamaica  
Bernstein, Michael, Kenmore  
Beyel, David Charles, West Leyden  
Brinkmann, Theodore John, Huntington, Long Island  
Carlson, Jack, Heber, Utah  
Clukey, Paul Eugene, Ithaca  
Conolly, Richard Donald, Snyder  
Cummings, Clifford Glenn, Oxford  
Davidson, Robert Randolph, Baldwin Harbor, Long Island  
Ezeokoli, Daniel C., Nanka Awka, Eastern Nigeria  
Flinton, John Hiland, Delmar  
Freedman, Robert Jay, Spring Valley  
Garrison, Fred Gregory, Pittsburgh, Pennsylvania  
Gelberg, Howard Barry, East Meadow  
George, Jeanne W., Huntington, Long Island  
George, Lisle Wesley, Blairsville, Pennsylvania  
Gingrich, John Andrew, Dry Run, Pennsylvania  
Goodnow, Lyle Calvin, Lee, New Hampshire  
Hall, Brian Edward, Schenectady  
Herstein, Dennis Marc, Little Neck  
Kellner, Henry, New York City  
Kelly, William James, Bronx, New York City  
Kemp, Charles Edward, Lafayette Hill, Pennsylvania  
Kingston, Richard Squire, Honeoye Falls  
Klyza, James Philip, Williamsville  
Kraybill, Robert William, Lincroft, New Jersey

## 56 Students

Malnati, George Anthony, North Adams, Massachusetts  
Manning, James Leo, North Rose  
Mayne, Grant Jennings, Fulton  
Meadow, Mark Richard, Liberty  
Meisels, Lloyd Stuart, Little Neck  
Montagna, Charles Robert, North Babylon  
Orcutt, Robert Marshall, Rowley, Massachusetts  
Ouellette, John Francis, Madison, Connecticut  
Palmer, Foster Kingsbury, Boonville  
Price, Steven Merrill, Franklin Square  
Rebhun, William Charles, Troy  
Reimels, Kenneth Daniel, Wayland  
Robinson, Donald Lee, Pleasantville  
Saxton, Philip, Cameron Mills  
Schimelman, Seymour Jerry, Glen Cove  
Shaw, Gary Frank, Niagara Falls  
Smith, Michael Scott, Canton  
Snyder, Randall Peter A., Ithaca  
Sofarelli, Robert Joseph, Huntington, Long Island  
Surgeon, Thoulton Windelle, Jamaica, West Indies  
Vine, Martin Howard, Forest Hills  
Wrooman, Dennis Lee, North Clymer  
White, Nathaniel Aldrich II, Trumansburg  
Wiesenfeld, Ira Robert, Jamaica  
Wiggers, Kent Knox, North Clymer  
Winkler, Kenneth Isadore, Fair Lawn, New Jersey  
Wolski, Thomas Richard, Bethpage  
Wrightson, George Dawson, Etna, New Hampshire  
Young, Clark Montgomery, Snyder

### Third Year, Class of 1972

Ahlers, Robert Alan, Delmar  
Allen, Timothy Arthur, Westbury  
Almstrom, David Howard, W. Boylston, Massachusetts  
Armitstead, Thomas Eugene, Fort Plain  
Baker, George James, Lindenhurst  
Becker, Edward Irving, Guilderland  
Benjamin, Richard Nathan, Yonkers  
Blessing, Calvin Edgar, Ashbury, New Jersey  
Bush, Avery David, Morrisville  
Carlson, Paul Kenneth, Dewittville  
Chamberlain, Dennis Clyde, East Lebanon, Maine  
Cortesi, Paul Joseph, Falls Village, Connecticut  
Dickey, Kenneth Marion II, Port Deposit, Maryland  
Dimberger, David Andrew, Tonawanda  
Dougherty, Roderick Bodine, Ithaca  
Eckerlin, Richard Howard, Manlius  
Fisch, Harvey, Brooklyn  
Foley, Robert Henry, Jr., Winchester, Massachusetts  
Friedland, Todd Brian, Plainview

Gluckman, Stuart Irwin, Brooklyn  
Goldstein, Damon Robert, Merrick  
Guild, Phillip Vernard, Honeoye Falls  
Hahn, Edward George, Claymont, Delaware  
Harris, Alan Michael, New Rochelle  
Higgins, William Paul, Jackson Heights  
Horowitz, Martin Saul, New York  
Howard, David James, Endwell  
Johnson, Robert Howard, Shrewsbury, Massachusetts  
Kazmierczak, John Julian, Dunkirk  
Kerbin, Priscilla Lee, Millbrook  
Kessler, Matthew Jay, White Plains  
Knight, Walter Franklin, Milford, New Jersey  
Krasuski, Frank Anthony, Mechanicville  
Krepp, James Charles, Bayside  
Kross, Steven Harris, Ellenville  
Letchworth, Geoffrey Josiah III, East Aurora  
McGee, David Lee, New Canaan, Connecticut  
McMillen, Thomas Blair, Massapequa  
Miller, Daniel Kade, Rohrerstown, Pennsylvania  
Miller, Jeffrey Richard, Danbury, Connecticut  
Moss, Kenneth Jay, Seaford  
Pease, Clinton Linn, Jr, Princeton, New Jersey  
Pettee, James Thomas, Chelmsford, Massachusetts  
Pijanowski, Gerald James, Lackawanna  
Pinckney, John Ederle, Rockville Centre  
Prussner, Harry Frederick, Jr., North Babylon  
Rand, James Albert, Amesbury, Massachusetts  
Reeve, Laurence Halsey, Riverhead  
Smith, Mary C., Ithaca  
Speciale, John, Plainview  
Stinga, Adrian, New York City  
Tangredi, Basil Peter, Manhasset  
Tucker, Allen James, Jr., Vergennes, Vermont  
Tulman, Michael Jonas, Hartford, Connecticut  
Wallach, Marc S., Franklin Square  
Washington, Lawrence Dowdell, Stamford, Connecticut  
West, Roger Louis, Hadley, Massachusetts  
Wilson, John Anthony, Elmhurst  
Wolf, David Alan, Buffalo  
Wright, James Michael, Dobbs Ferry

### Second Year, Class of 1973

Ackerman, David Bruce, Brooklyn  
Adams, Robert John, Little Neck  
Allen, Bruce Dain, Hartsdale  
Ansley, James Rawlings, Killarney, Florida  
Baldwin, Charles Alexander, Northfield, Massachusetts  
Bandes, John David, Valley Stream  
Barra, Michael Joseph, Catskill  
Berman, Eli Michael, Brooklyn  
Bird, Richard John, Spencer, Massachusetts  
Brown, Kerry Lee, Berwick, Pennsylvania  
Butterfield, Timothy James, Windham, New Hampshire

Carlson, David Jon, W. Hatfield, Massachusetts  
 Cochrane, Jack Alan, Ripley  
 Coley, David Sherwood, Weston, Connecticut  
 Cooke, Gary Stephen, Bridport, Vermont  
 De Boer, Henry, Jr., Tallman  
 Ecklund, Thomas Todd, Bellmore  
 Ford, Donald Eugene, Scarsdale  
 Gardner, Charles Edward, Elmer, New Jersey  
 Gerber, William Andrew, Niagara Falls  
 Goldstein, Martin Gene, New Hyde Park  
 Haggerty, George Francis, Holtsville  
 Hopek, Stanley Frank, Syosset  
 Kanter, Peter Maurice, New York  
 Kester, Richard Arthur, Boston, New York  
 Killewald, William R., N. Tonawanda  
 Korol, Constance, Wappingers Falls  
 Krause, Jon Don, Hancock  
 La Porte, Michael Andrew, Kenmore  
 Leiby, Kent Dean, Tamaqua, Pennsylvania  
 Lyman, Stuart Creighton, Middlefield, Connecticut  
 Lynch, Kevin Gerard, Huntington Station  
 MacDonald, James Allen, Albany  
 Maier, William Joseph, Batavia  
 Nirschl, David Lee, Sharon Springs  
 Nolan, Thomas Edward, Genoa  
 Olson, James Koenig, Jamestown  
 Parver, Edward, Laurelton  
 Pekala, Stanley John, Burlington, Vermont  
 Powers, Timothy Curtis, Madison, Maine  
 Rink, Douglas Bruce, Huntington  
 Robertson, Nils Walter, Foster, Rhode Island  
 Rogoff, Jay Howard, New York  
 Ross, Gary Sterling, Rome, Pennsylvania  
 Rothstein, Howard William, Merrick  
 Ruksznis, Dennis Alan, Sangerville, Maine  
 Sammons, Lenora Y., Union City, Pennsylvania  
 Sammons, Myrl Lynn, Union City, Pennsylvania  
 Schalk, William K., Rochester  
 Scherline, Eugene Dexter, Wantagh  
 Schweitzer, Denise Monica, Grand Island  
 Simon, Allan Bruce, Franklin Square  
 Sprague, Edward Lee III, Versailles  
 Thompson, Ross William, Buffalo  
 Tisdale, Robert J., Canaserga  
 Witter, Larry Willis, Richmond, Virginia  
 Wright, John Jerome, Hamburg  
 Yartz, Franklin Henry, Jamestown  
 Zagraniski, Michael Joseph, New Haven, Connecticut

## First Year, Class of 1974

Arnold, Stephen Alfred, Seaford  
 Barsanti, Jeanne Ann, Minoa  
 Bluvas, Peter Jan, Amsterdam  
 Brooke, Gregory Paul, Baldwin, Wisconsin  
 Campbell, Bruce Carter, Fort Collins, Colorado

Chamberlin, Mark Elton, Waverly  
 Deans, Margaret Alice, Alfred Maine  
 Deitsch, Philip O., New Rochelle  
 Dykes, Nathan Leonard, Teaneck, New Jersey  
 Evans, David Allen, Springville  
 Evans, Douglas Edward, Georgetown  
 Fagan, Richard Howard, Rochester  
 Farber, Alan Martin, Arverne  
 Fisher, James Lee, Glens Falls  
 Glauberg, Aaron Frank, Hewlett  
 Gonzalez, Theodore R., E. Brentwood  
 Grossman, Jeffrey Eliot, Flushing  
 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  
 Loiocano, Steven Carl, Fredonia  
 Lundeen, Lars Axel, Farmingdale  
 MacDonald, John Milner, Plymouth, New Hampshire  
 MacNeill, Bradley Patton, Fayetteville  
 Medic, David V., Irwin, Pennsylvania  
 Meuten, Donald John, Sharon, Connecticut  
 Morena, Craig Thomas, Massapequa  
 Morris, Robert Ada, Staten Island  
 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  
 Raggi, Anthony Nicholas, Staten Island  
 Rees, Roger Elliot, Morgan, Utah  
 Rosenfeld, Irv Steven, Island Park  
 Rowe, Donald Lawrence, Vassalboro, Maine  
 Russo, Elizabeth A., Staten Island  
 Schechter, Lee Howard, Valley Stream  
 Schlafer, Donald Hughes, Oxford  
 Seader, Richard Paul, Merrick  
 Seleen, William Arvid, DeWitt  
 Sherman, Bruce Aner, Woodstock, Connecticut  
 Shriro, Alan G., Mt. Vernon  
 Tedeschi, Mitchell J., Little Neck  
 Terry, Charles Miles II, Huntington Station  
 Travis, Harry Joseph, Huntington  
 Weinstein, Susan Jane, Cobleskill  
 Westfall, Geoffrey James, Cazenovia  
 Winn, Kenneth Frank, Hamburg  
 Yancey, Samuel P., Lowville  
 Zambito, Michael J., Newburgh

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