

VETERINARY EDUCATION CURRICULUM AT CORNELL UNIVERSITY (1990 - 2010)

UNIVERSITY OF TOKYO

Donald F. Smith, DVM
Austin O. Hooey Dean Emeritus
Cornell University
College of Veterinary Medicine

November 2010

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OBIHIRO UNIVERSITY OF AGRICULTURE AND VETERINARY MEDICINE

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NIPPON VETERINARY AND LIFE SCIENCE UNIVERSITY

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Greetings from Cornell University

- Thank you for the invitation to speak at your prestigious university
- I extend greetings from Cornell President Dr. David Skorton
- Also greetings from veterinary college's Dean Dr. Michael Kotlikoff

Cornell University, Ithaca Campus



**Founded in 1865
by Ezra Cornell
and A.D. White**

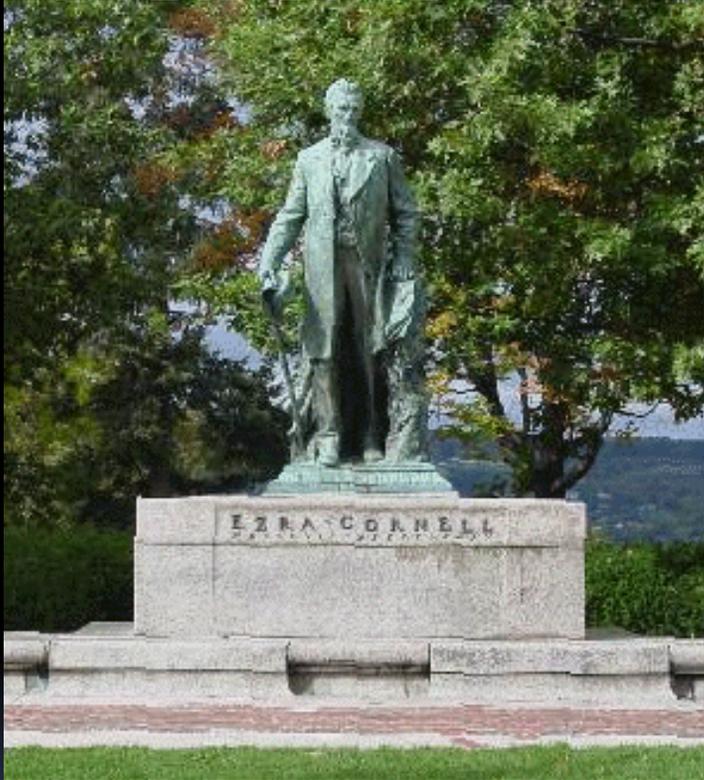
**Combines public state
support (4 colleges)
and private (10 colleges)**

Undergraduate students = 14,000

Graduate and Professional students = 6,700

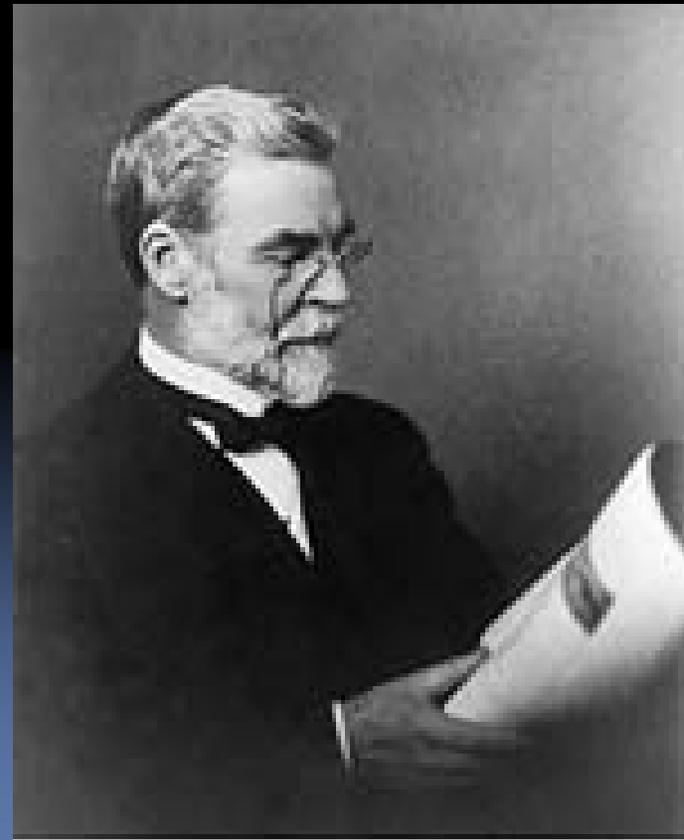
Faculty = 2,900 Staff = 11,300

Cornell University and Veterinary Medicine



Ezra Cornell:
Ithaca farmer, legislator,
benefactor

James Law:
Scottish veterinarian and first
veterinary faculty at Cornell



Cornell University Medical College

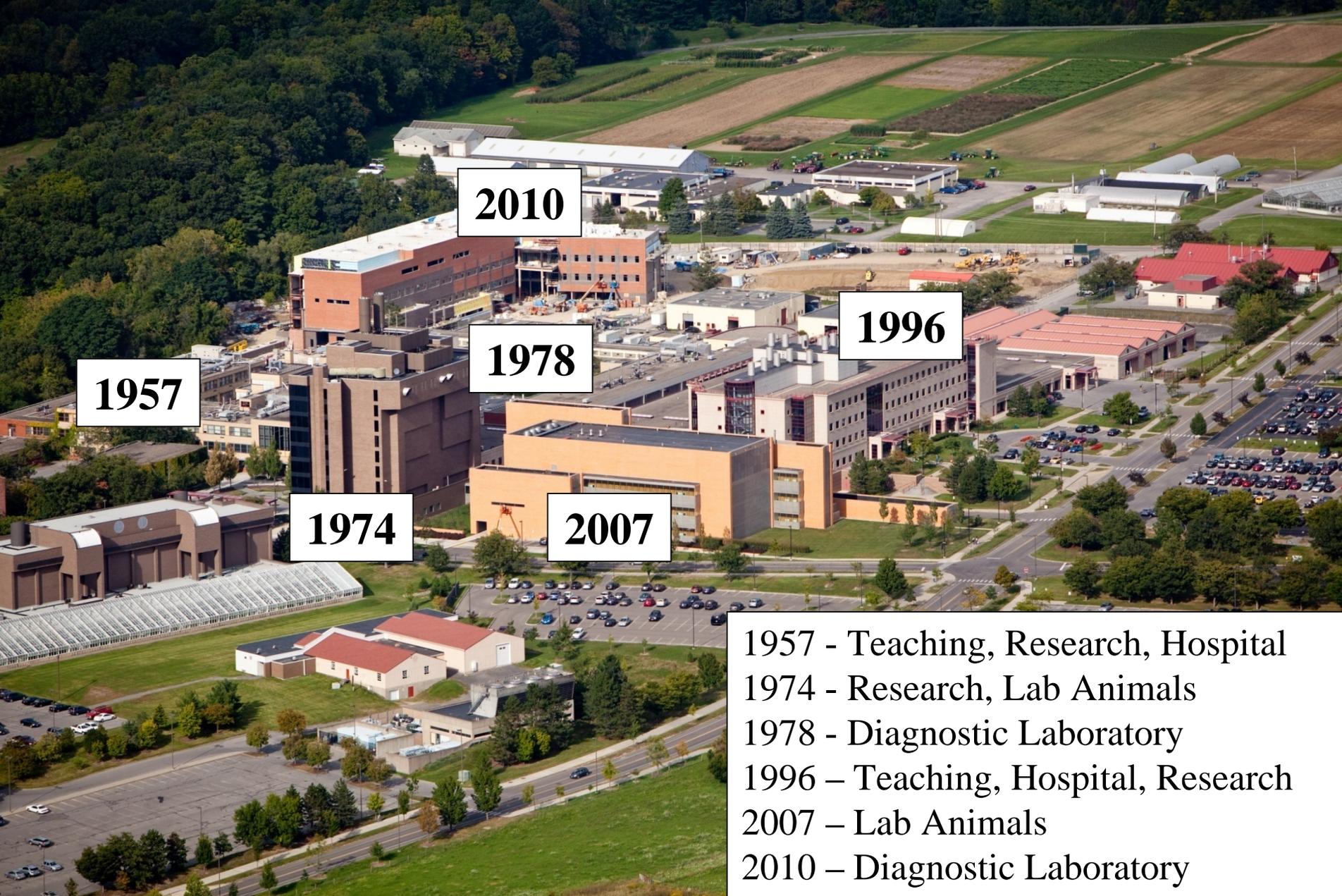


**Medical College moved to
New York City in 1920s**

**Biomedical Sciences remained
on Ithaca campus**



Cornell College of Veterinary Medicine 2010



1957

1974

1978

2007

2010

1996

- 1957 - Teaching, Research, Hospital
- 1974 - Research, Lab Animals
- 1978 - Diagnostic Laboratory
- 1996 - Teaching, Hospital, Research
- 2007 - Lab Animals
- 2010 - Diagnostic Laboratory

Cornell's Veterinary College Mission

1. Teaching -
 - DVM (60% from New York State)
 - PhD/MS
 - Clinical residencies
2. Clinical Programs and Diagnostic Medicine
3. Research (Basic and Clinical Sciences)

Departments in College of Veterinary Medicine

**Biomedical
Sciences**

**Microbiology
and
Immunology**

**Molecular
Medicine**

Baker Institute

**Clinical
Sciences**

**Population
Medicine
and
Diagnostic
Sciences**

**Hospital
For Animals**

**New York
Diagnostic
Center**

Cornell University

College of Veterinary Medicine

Students

- 90 DVM students per year
- 70 clinical interns and residents
- 150 graduate students

Faculty

- 120 tenure track (professors)
- 120 other (instructors, lecturers, research only)

Staff

- 700: teaching, research, clinical, administrative

College of Veterinary Medicine Annual Budget - \$133 million

- 23%: New York State public support
- 11%: Tuition (including graduate students)
- 34%: Research grants and contracts
- 23%: Hospital, Diagnostic Laboratory
- 9%: Gifts and endowment earnings (endowment is \$145 million)

Class size – 90
Women – 80%
New York State – 60%



The DVM Curriculum before 1990

- **Year I** – anatomy (dissection, microscopic), embryology, biochemistry, physiology
- **Year II** – physiology (cont'd), pathology, pharmacology, microbiology and immunology, general medicine and surgery, epidemiology
- **Year III** – clinical disciplines, applied anatomy, nutrition
- **Year IV** – clinical rotations

The New Curriculum at Cornell University (the beginning)

- Robert D. Phemister was dean of college during 1985 – 1995.
- As a student at Cornell (Class of 1960), he felt that the faculty was excellent, but that the curriculum could be improved.
- Our graduates were high quality, but he felt that the way in which we teach the curriculum could be improved.

Goals for the New Curriculum

- Create opportunity for active student learning.
- Provide flexibility for students to take some courses in their area of interest.
- Examine live animals in Years I and II (before they reached the clinical years).
- Allow more faculty (especially research faculty) to be involved in teaching process

The New Curriculum at Cornell (Administrative Concerns)

- The curriculum was fragmented by departmental jurisdiction.
- There was not enough flexibility to allow update and change.
- Student concerns (complaints) were sometimes not addressed.
- There was no centralized authority.

The New Curriculum at Cornell (Concerns about the Style of Learning)

- Most of the courses were required with minimal time available for elective courses.
- The course timetable was rigid.
- Lectures were numerous and filled with facts.
- There were many exams.
- Students did not examine live animals until third year.

Foundation and Distribution Courses

- **Foundation Courses:** comprise 70% of the curriculum, taken by all students in the same sequence. **Long, integrated courses.**
- **Distribution Courses:** comprise 30% of the curriculum, organized in sets, allow “structured choice”. **Short, specific courses.**

Foundation Courses

- **The Animal Body (12 cr)**
- **Cell Biology and Genetics (8 cr)**
- *Neuroanatomy (2 cr)*
- **Function and Dysfunction (16 cr)**
- **Host, Agent, and Defense (12 cr)**
- *Parasitology (2.5 cr)*
- **Animal Health and Disease (20 cr)**
- **Clinical Rotations (37 cr)**
- **Veterinary Practice (7.5 cr)**

Fall

Spring

I

The Animal Body	Cell Biology & Genetics	Distribution Courses	Function & Dysfunction
Physical Examination	Animal Care		Communication

II

Funct & Dysf'n	Host, Agent & Defense	Distribution Courses	An. Health & Disease
Cont.	Public Health		Procedures

III

Animal Health & Disease	Distributions	Distributions
Clinical Procedures	Clinics	Clinics

IV

Clinical Rotations	Distributions	Distributions
	Clinics	Clinics

Foundation Courses I - IV

- **First three semesters (one and one-half years)**
- **Basic Science curriculum, taught with references to clinical cases**
- **Emphasize small group learning, supplemented by lectures and laboratories (especially in courses I, II, IV)**
- **Failure rate or dropout rate is approx 3-4 %**
- **Only one other U.S. college has a curriculum similar to this.**

Foundation Courses I - IV

- **Course I – anatomy, histology, embryology; neuroanatomy; also a little physiology, radiology and medicine**
- **Course II – cell biology and some genetics**
- **Course III – physiology, basic pathology, pharmacology**
- **Course IV – bacteriology, virology, immunology, epidemiology; also parasitology in a parallel course**

Fall

Spring

I

The Animal Body	Cell Biology & Genetics		Function & Dysfunction
Physical Examination	Animal Care		Communication

II

Funct & Dysf'n	Host, Agent & Defense		
Comm.	Public Health		

III

IV

Mon

Tues

Wed

Thur

Fri

8:00

**Tutoria
l
Session**

**Tutoria
l
Session**

**Tutoria
l
Session**

Lecture

**Tutoria
l
Session**

**Comparative
Anatomy
Laboratory**

**Gross
Anatomy
Laboratory**

**Radiology
Laboratory**

**Gross
Anatomy
Laboratory**

**Case
Presentation**

12:00

Lecture

Lecture

**Physical
Exam-
ination**

**Physical
Exam-
ination**

5:00

A Tutorial Group



- Small room
- One professor
- 7-8 students

The Cases in Course I

- 1. Thoracic Cavity – two cases: lungs and heart**
- 2. Head and Neck – three cases:
larynx/pharynx, ear and skull, eye and skull**
- 3. Abdominal cavity – four cases:
stomach/spleen, intestines/liver/pancreas,
urinary, reproductive**
- 4. Limbs – two cases: fore limb, rear limb**

The First Case:

A Dog with Pneumothorax (six days)

- 1. Three tutorial sessions (6.5 hours)**
- 2. Eight lectures (8 hours)**
- 3. Three dissection laboratories (6 hours)**
- 4. Three histology laboratories (6 hours)**
- 5. One radiology laboratory (two hours)**
- 6. One clinical examination lab (two hours)**

Tutorial Sessions for Pneumothorax Case

Session One (Pages 1-5)

- **History, physical exam, PCV/TP, radiographs, chest tube**

Session Two (pages 6-10)

- **Second day update, more radiographs, CBC and blood chemistry**

Session Three (pages 11-15)

- **Third day update, final radiographs, remove chest tube**

Learning Issues for Pneumothorax Case

- **Gross anatomy of thorax and thoracic body wall**
- **Spatial relationship of lungs and other major structures in thoracic cavity (complemented by second case: heart)**
- **Histology of respiratory system**
- **Radiography of thoracic cavity (pneumothorax)**
- **Physical examination of thoracic cavity (lungs)**
- **Development of pulmonary system**
- **Introduction to clinical medicine**

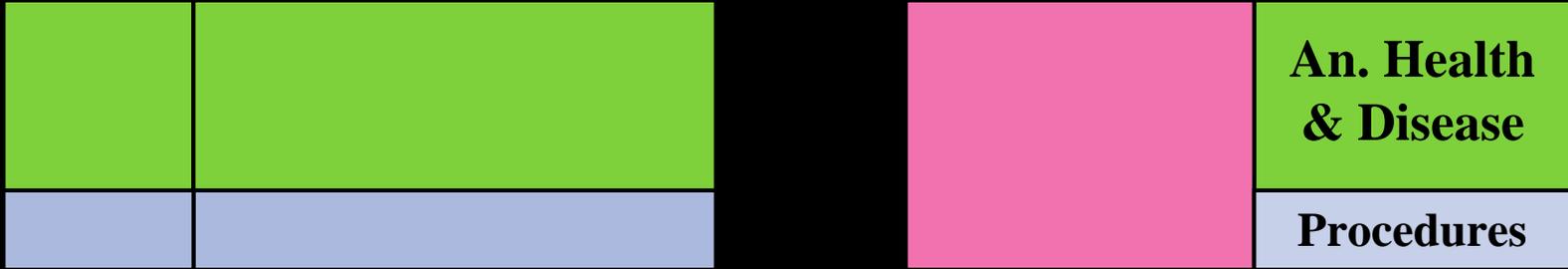
Fall

Spring

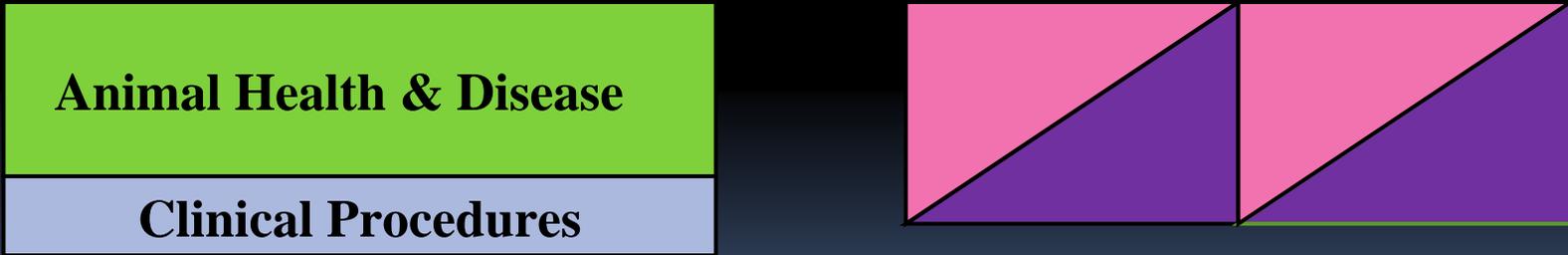
I



II



III



IV



Foundation Course V

- **Semesters four and five (second half of year II and first half of year III)**
- **Clinical Science curriculum**
- **Many lectures, supplemented by laboratories**
- **Failure rate or dropout rate is unusual**
- **Similar curriculum to other colleges in U.S.**

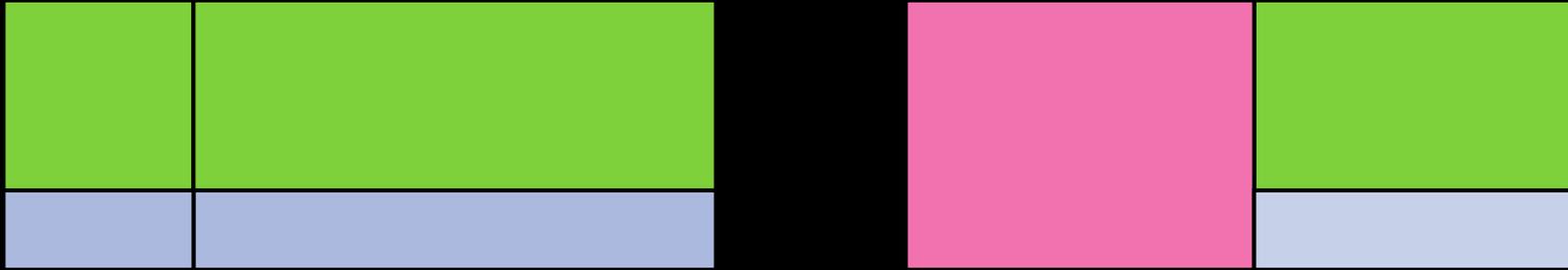
Fall

Spring

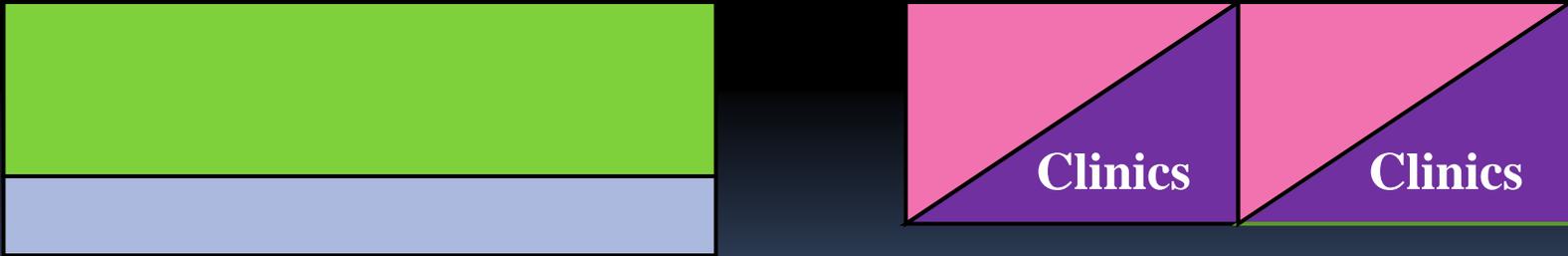
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II



III



IV



Clinical Rotations (two weeks)

- **Ambulatory and Production Medicine**
- **Community Practice Service**
- **Small Animal Medicine**
- **Small Animal Soft Tissue Surgery**
- **Large Animal Medicine**
- **Large Animal Soft Tissue Surgery**

Clinical Rotations, continued



- **Anesthesiology**
- **Pathology**
- **Radiology/Imaging**
- **Small Animal Emergency & Critical Care**
- **Dermatology**
- **Ophthalmology**

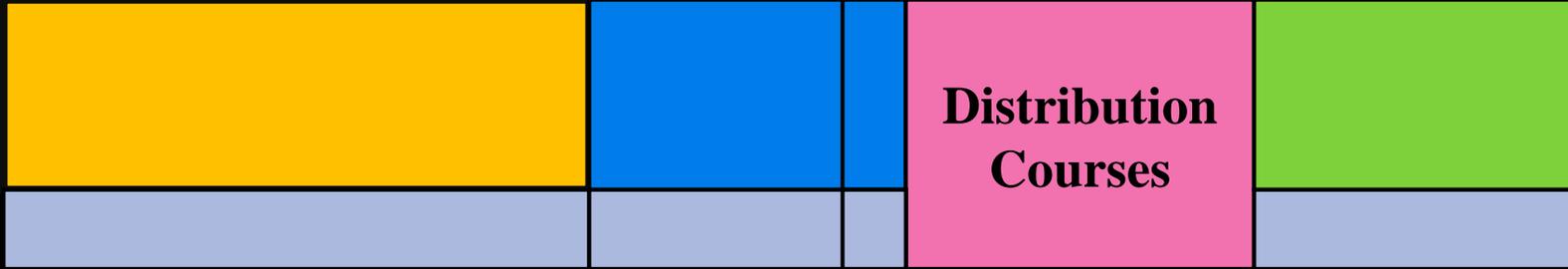
Pathways for Clinical Interest (12 credits)

- **Small Animal**
- **Equine**
- **Food Animal**
- **Exotic Pets (Small Animal)**
- **General (Mixed) Animal**
- **Zoo and Wildlife**

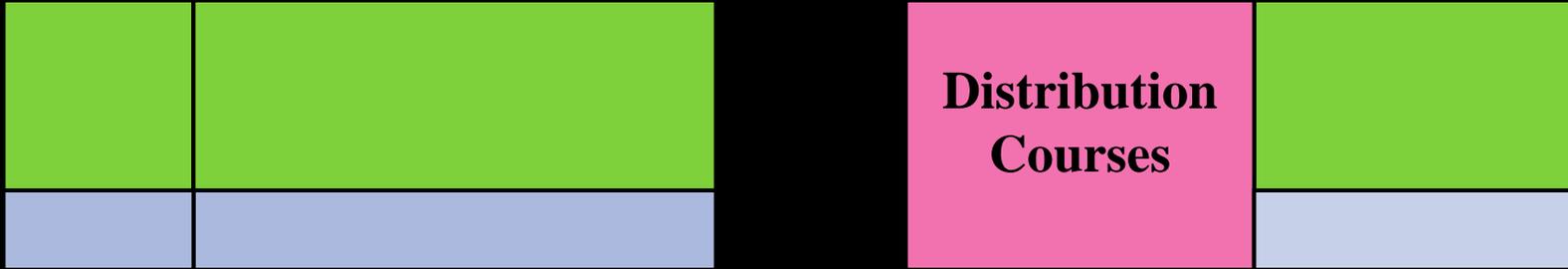
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Spring

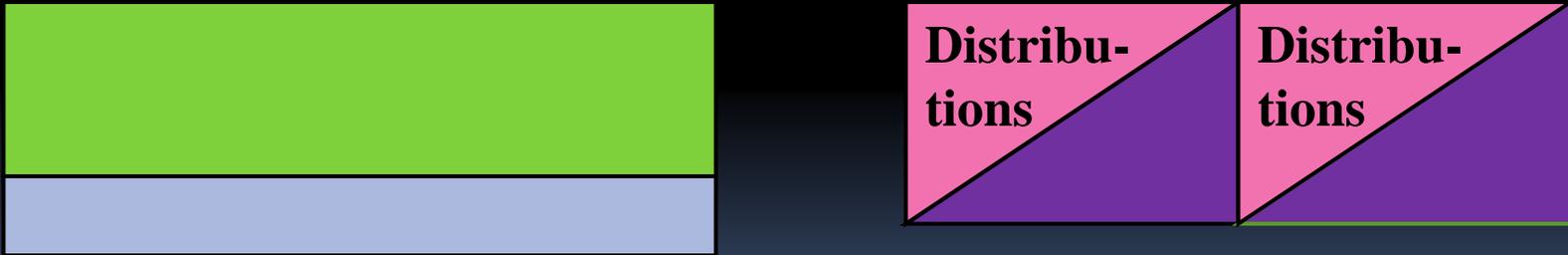
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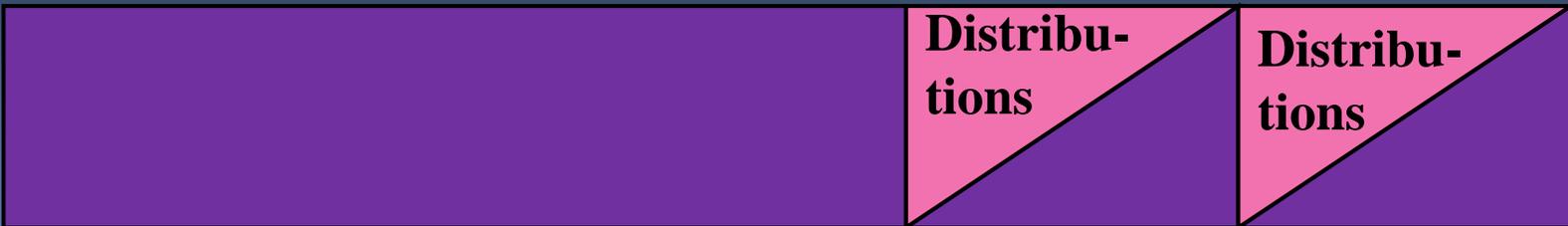
II



III



IV



Distribution Courses

- These comprise approximately 30% of the curriculum and are scheduled in the spring semester of each year.
- There are approximately 100 courses from which to choose, some of which are arranged in “sets”, with requirements for a specific number of credits per set.
- Other courses are elective.

Examples of Distribution Courses

- **Dissection of the Horse / Ruminant, etc.**
- **Electrolyte and Fluid Therapy**
- **Veterinary Clinical Pathology**
- **Swine Infectious Diseases and Management**
- **Diseases of Birds**
- **History of Veterinary Medicine**
- **Small Animal Dentistry**
- **Dairy Production Management**

Positive Results of the Curriculum

- Most students prefer the new curriculum and some chose Cornell because of it.
- Students can research information better.
- Students are better able to communicate with each other and with faculty and veterinarians.
- More faculty (especially research faculty) are involved in teaching.
- There is no difference in academic grades.

Early Introduction to Clinical Environment



Concerns about the Curriculum

- **It takes more time for faculty to teach.**
- **It is not as efficient to teach facts or specific knowledge.**
- **Foundation Courses are hard to update.**
- **Students in last years of old curriculum feel badly; students in first years of new curriculum feel like they are being experimented on.**
- **It is expensive and controversial.**

**Thank you very much for the
opportunity
to meet you and to speak with you.**



Please contact me
if you wish more information

- Donald F. Smith, DVM, DACVS,
Dean emeritus and professor of surgery
- dfs6@cornell.edu 607-253-3605
- T1 002 Veterinary Research Tower, College
of Veterinary Medicine, Cornell University,
Ithaca, NY 14853
- www.veterinarylegacy.blogspot.com