Course Information

General Information

Course Title: Endocrinology BIOL-494

Number of credits: 3

Semester: Spring, 1997

Class Time: MWF, 9:15 to 10:15 a.m.

Class Location: IRV 201

Instructor: Pierre Deviche, Ph.D.
Associate professor of Animal Physiology
Department of Biology and Wildlife

Office Location: IRV 413
Office Phone #: 474 7158
E-mail: fipjd1@aurora.alaska.edu
Office Hours: Monday, 2:15 to 3:15 p.m. or by appointment

Course Description:
“Endocrinology” will introduce you to the main endocrine systems that operate in vertebrates. It will describe mechanisms and sites of actions of hormones, as well as the behavioral, physiological, and biochemical effects of hormones. Examples will be taken from the recent vertebrate literature. Students taking the class are expected to have a solid background in general physiology (Animal Physiology 210 or equivalent).

Attendance Policy:
Students are expected to attend all lectures and student presentations. Examinations will be based on the material presented during lectures as well as on the paper discussions. The main textbook used for this class is Vertebrate Endocrinology by David Norris (3rd edition, 1996). Please note that not all the material included in this book will be covered in class, and some material will come from other sources.

Assignments:

A. Tests: There will be 3 one-hour long partials and a two hour-long final exam. The final test will be comprehensive, and it will be optional if your overall grade up to that point is
A. Tests will primarily consist of short essay questions. For your information, tests given in 1995 (last time the course was offered) are available upon request.

B. Article Discussions: This should be a fun and informative part of the course. Since the course does not have a lab., this is the “hands-on” part of it, where we will look into how endocrinologists go about their research, how they design experiments, collect and analyze data, and draw conclusions from these data. Here, a team of two students will sign-up for a one-hour presentation of one of the papers (sometimes, two related papers will be discussed during the same one-hour period) listed in the course outline. *Time slots will be allocated on a first-come, first-served basis.* All students in the class are requested to carefully read the articles in advance so as to be able to discuss them in class, and also because *some of the material presented in these papers will appear on the tests.* The two team leaders will present the article and discuss it with the whole class, paying special attention to the following points:

- Why did the authors decide to make the specific studies that they describe in their article?
- How did they go about designing these studies? What techniques did they use? Are the experiments properly controlled and analyzed? Do they include large enough samples to justify the conclusions?
- Are there studies that should have been included, but were omitted?
- Do these studies tell us something new?
- Are the results important to endocrinology and to science in general? Why so?
- What is the main take-home message of the article?
- What subsequent studies should be done to further advance our knowledge on this topic?
- Had you studied the same question, would you have used the same approach as the authors? If not, what would you have done differently?

C. Lecture Summary: At the beginning of each lecture, a student will be requested to present a *five minute* summary of the material presented during the previous class, whether it was a lecture or an article discussion. You may not present the 5 min summary of an article if you were the person leading the discussion of this same article! Five minute slots will be allocated on a first-come, first-served basis.

When preparing for this exercise, please keep in mind that I *do not* have in mind that you just stand up and repeat the outline of the previous lecture. Instead, you should ask yourself what was the main take-home message of the lecture: If this were the first time your audience were hearing of the subject, what would you like it to remember? For example, if we covered hormone XYZ, don’t just tell the class that we talked of this hormone and its effects for one hour. Instead, be specific and tell something, e.g., about the site of production of the hormone, its main effects, and/or its mechanism of action at the tissue/cellular level. Feel free to come up with one or two carefully prepared overhead transparencies if you think this helps making your point.
Grading Policy:

Your final grade will be calculated as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>15</td>
</tr>
<tr>
<td>Test 2</td>
<td>15</td>
</tr>
<tr>
<td>Test 3</td>
<td>15</td>
</tr>
<tr>
<td>Final Test</td>
<td>25</td>
</tr>
<tr>
<td>Lecture Summary</td>
<td>5</td>
</tr>
<tr>
<td>Article Discussion</td>
<td>15</td>
</tr>
<tr>
<td>Active Participation</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
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Sources of information:

In addition to the main textbook and the material presented in class, there are many valuable sources of information that are available to you. For example:

Many professional journals and books can be found in the Biomedical Library (AHRB).

The following Web pages are fun to read and very informative. They present up-to-date information on a wide variety of subjects, and you can use them to locate many additional resources:

http://www.endo-society.org/index.htm: This is the home page of the Endocrine Society. Once you get in there, you may want to check the following:

*Fact sheets*: concise information on a variety of subjects, e.g., contraception, hormone rhythms, stress-related diseases, thyroid disorders, etc.....

*Endocrine Society journals*: The Endocrine Society publishes four different, high quality journals (*Endocrine Reviews, Endocrinology, Clinical Endocrinology, and Molecular Endocrinology*). You can access the content (titles and abstracts) of past and future issues.

*Endocrine-related sites*: links to many other sites of interest.

http://www.elsevier.nl/section/life/opal/doc/demos.htm#demo: a Way Cool Site put together by Elsevier Publishing Co. Once you are at the indicated address, click on *Module 4: Endocrine cells, Online Preview*: This will take you into a virtual slide show illustrating various aspects of the endocrine system graphically. A good way to review your general knowledge of hormone sites of production, target tissues, mechanisms of action, etc..... Definitely worth looking into when all these pages and figures of the textbook start dancing in front of your eyes!

http://minerva.acc.Virginia.EDU/~sbne: This is the home page of the Society for Behavioral Neuroendocrinology, which was created in 1996. There isn’t much yet in there besides a link to a few interesting sites, but you may want to check it regularly, as it is likely to improve substantially in the near future.
http://www.endocrinology.org: Shows the home page of the Society for Endocrinology, which publishes *Journal of Endocrinology, Journal of Molecular Endocrinology, Endocrine-Related Cancer*, and *Clinical Endocrinology*. Articles contained in these journals are searchable (by title, author,…), so you can use this site to locate, e.g., information on a given topic.

http://www.ssr.org/~ssr/ssr.htm: This will take you right into the home page of The Society for the Study of Reproduction, which publishes *Biology of Reproduction*. As in the case of the previous site, the content of this journal is searchable.
Endocrinology - Spring 1997
Course Outline

Date    Topic

January

F, 01/17    Course Introduction/Organization
M, 01/20    AK Civil Rights Day
W, 01/22    The Scope of Endocrinology
F, 01/24    Hormone Classification I
M, 01/27    Hormone Classification II
W, 01/29    Mechanisms of action I
F, 01/31    Previous Lecture Summary: Mechanisms of action II

February

M, 02/03    Previous Lecture Summary: Mechanisms of Action III
Discussion Leader(s): __________________________
F, 02/07    Previous Lecture Summary: Hypothalamo-hypophysial Axis
M, 02/10    Previous Lecture Summary: Neurohypophysial hormones: Vasopressin and Oxytocin
W, 02/12    Partial I
Discussion Leader(s): __________________________
M, 02/17    Previous Lecture Summary: Hypothalamo-hypophysio-gonadal Axis: Male
W, 02/19  ▲ Previous Lecture Summary: 
Hypothalamo-hypophysio-gonadal Axis: Female

Discussion Leader(s): 

Discussion Leader(s): 

Discussion Leader(s): 

F, 02/28  ▲ Previous Lecture Summary: 
Neuroendocrine Regulation of Reproductive Behavior I

March

M, 03/03  ▲ Previous Lecture Summary: 
Neuroendocrine Regulation of Reproductive Behavior II

Discussion Leader(s): 

F, 03/07  ▲ Partial II  ▲

Discussion Leader(s): 

W, 03/12  ▲ Previous Lecture Summary: 

Hypothalamo-hypophysio-adrenal axis I

F, 03/14  ▲ Previous Lecture Summary: ____________________________

Hypothalamo-hypophysio-adrenal axis II

M, 03/17  Spring Break

W, 03/19  Spring Break

F, 03/21  Spring Break

Discussion Leader(s): ________________________

W, 03/26  ▲ Previous Lecture Summary: ____________________________

Prolactin

F, 03/28  ▲ Previous Lecture Summary: ____________________________

Pancreatic hormones: Insulin and Glucagon.

Discussion Leader(s): ________________________

April

W, 04/02  ▲ Previous Lecture Summary: ____________________________

Growth Hormone

F, 04/04  ▲ Previous Lecture Summary: ____________________________

Calcium homeostasis

M, 04/07  ▲ Previous Lecture Summary: ____________________________

Sympatho-adrenal axis I

W, 04/09  ▲ Previous Lecture Summary: ____________________________

Sympatho-adrenal axis II

F, 04/11  ❢ Partial III ❢

Discussion Leader(s): ________________________

W, 04/16  ▲ Previous Lecture Summary: ____________________________
Thyroid Hormones

F, 04/18  
Discussion Leader(s): 

M, 04/21  
więkski Previous Lecture Summary: 
Melanotropic Hormones

W, 04/23  
więkski Previous Lecture Summary: 
Pineal Gland

F, 04/25  **All Campus Day**

M, 04/28  
**Paper Discussion:** Viguie et al. (1997): Characterization of the short day-induced decrease in median eminence tyrosine hydroxylase activity in the ewe: Temporal relationship to the changes in luteinizing hormone and prolactin secretion and short-day effect of melatonin. *Endocrinology* 138: 499-506.  
Discussion Leader(s): 

W, 04/30  
więkski Previous Lecture Summary: 
Gastrointestinal Hormones

May

F, 05/02  **No Class**

M, 05/05  **Final Examination, 0800 a.m. to 1000 a.m.**