BIOL 432 AO1 (CRN 20366)
Molecular Endocrinology
Spring 2019
Tues/Wed/Fri 11:30 am - 12:30 pm
Location: ECS 125

Lecture: Elliott Building 167 Tues/Wed/Fri 11:30 am - 12:30 pm
Office: Cunningham 217 Tues and Fri 10:15 am - 11:15 am

Instructor: Dr. Patrick Walter Email: pwalter@uvic.ca
Dr. Mary Wagner wagnerm@uvic.ca

General Information:
This is an introduction and survey course of general and contemporary endocrinology topics (see below for university calendar description). Following this course, you should have a working understanding of the molecular basis for the synthesis, actions and regulation of hormones and their receptors in healthy and disease states. You should also be able to generally interpret endocrinology papers from scientific literature.

Description from the UVic Calendar:

Units: 1.5, Hours: 3-0
Basic and molecular aspects of endocrinology. Brain hormones and their precursors, insulin and its receptor, gene-associated peptides, new glycoprotein hormones, growth factors, steroids, the superfamily of steroid and thyroid receptors, pheromones, oncogenes, and immunoendocrinology. Lectures and presentations of scientific papers.

Prerequisites: One of: BIOL 360, 365, 305A, BIOC 300A, 300B. (BIOC 299 also acceptable)

Office Hours:
Cunningham 217 10:15 – 11:15 Tuesdays and Fridays – The instructor that teaches the lecture that follows will be present. Dr. Walter is adjunct faculty and therefore has limited time on campus, and Dr. Wagner is not on campus except for this course. If these times conflict with your schedule, e-mail to set up an alternate time.

CourseSpaces Moodle:
This course uses the university Moodle learning/teaching resource. To access this course, log onto https://coursespaces.uvic.ca/course/view.php?idnumber=20190120366

Use your Netlink ID and password. We will post the course notes outline, journal article guidelines and other important information through this site. We will also post the PowerPoint presentation (in pdf format) for each lecture prior to each class. You may choose to print the slides and add notes to them during class. Please check Course Spaces regularly, as this is where course announcements will be posted.

Top Hat:
We will be using TopHat as an additional resource. TopHat will be worth 5% where 2.5% are bonus participation marks and 2.5% are a graded part of the course total. Review questions, a discussion of a scientific paper, and in-class questions will be posted using this site. It is recommended that all students purchase a TopHat account. You can also post questions to us on TopHat.

You can visit tinyurl.com/StudentStartGuide for Top Hat's Student Quick Start Guide which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system.

Once you have registered and entered in your subscription code, your course can be directly accessed via the following:

Top Hat course name: **Biology 432: Molecular Endocrinology - Spring 2019"**
Direct URL: **https://app-ca.tophat.com/e/788506**
6-digit course code: **788506**

Course Text:
Greenspan's Basic and Clinical Endocrinology by Gardner, D.G. and Shoback, D. 9th Edition. ***This text is recommended, but not required.*** This text is now available in a digital format and is a medical text with extensive clinical information. If you intend to continue studying in the field of endocrinology, it would be a good reference text for you to own. We will NOT be covering all the material in the text. The primary source of information will be the lecture slides covered in class. Two copies of the 8th edition of the textbook are on reserve in the library. There also may be second hand copies of the 8th edition which is very similar, available from the Used Book Store.

Journal Articles:
Journal articles will be assigned, and some class time will be allocated to going over the papers and taking questions. Short answer questions on each journal article will be tested on the midterms and final exam. Only articles given in a specific section will appear on the exams. For example, you will be responsible for at least 1 article for the first midterm, a different article for the second midterm, and different articles on the final. More details regarding the journal articles and sample exam questions will be available on Moodle Course Spaces. One journal article discussion question will be posted in TopHat and your response will be graded for bonus marks.

Course Evaluation:
37% **Midterm** – **Friday February 15th using TopHat**
(50 min in class, cumulative, includes journal article questions, and will be made up of multiple choice, fill in the blanks, and short answer questions). If the midterm is missed with a medical excuse, there will be a makeup exam at a scheduled date. If you feel that we should be made aware of any special circumstances or accommodations for your participation in the course, please notify us.

58% **Final exam** - Date TBA, Monday Apr 5th or thereafter 3 hours, cumulative –
only in the sense that we build on concepts established before the first midterm,
emphasizes material after the Midterm, includes journal articles (but only for articles given in this section) and is made up of short answer questions. Must be completed to receive a final grade for the course. Deferred exams will be handled as outlined in the University of Victoria calendar.

In Class TopHat Questions:
2.5% Course Marks for Top Hat graded activities (% of 2.5% for correctness).
2.5% Bonus Marks for Top Hat activities participation (greater than 70% participation).

Your final overall mark in the course will be given as a percent based on the following guidelines: A+ = 90-l00%, A = 85-89.9%, A- = 80-84.9%, B+ = 77-79.9%, B = 73-76.9%, B- = 70-72.9%, C+ = 65-69.9%, C = 60-64.9%, D = 50-59.9%, F = 0-49.9% (if all requirements completed), N (if not all requirements completed)

You are not allowed to cheat or plagiarize in this course, as outlined in the University of Victoria calendar. This course will strive to be an inclusive and safe learning environment recognizing the diversity of the students and their opinions as outlined in the University calendar.

For questions regarding lecture material, students should go to the instructor for that particular topic. General concerns and questions about marks should be addressed to Dr. Walter as course administrator.

Provisional Lecture Schedule 2019 (changes will be necessary)

Week 1: SEMESTER STARTS TUES JAN 7 END Fri APR 5th 2019

1. Tues Jan 8. Introductions/Outline/Endocrine Overview – Wagner, Walter
2. Wed Jan 9. Endocrine Overview – Walter
3. Fri Jan 11. Endocrine overview (cont.) – Walter

Week 2:

4. Tues Jan 15. Endocrine overview - Hormone Mechanisms -– Walter
5. Wed Jan 16. Hormone Mechanisms -– Hormone biosynthesis - Walter
6. Fri Jan 18. Hormone Mechanisms - Surface Receptors – Walter

Jan 20 Sun Last day for 100% reduction of second-term fees if drop course

Week 3:

7. Tues Jan 22. Introduction to Nuclear Receptors – Walter Hypothalamus and Pituitary – Wagner
8. Wed Jan 23. Hypothalamus and Pituitary – Wagner

Wed Jan 23. **Last day for adding courses that begin in the second term**

9. Fri Jan 25. Growth Hormone Axis – Wagner

Week 4:

10. Tues Jan 29. Diseases of Growth Axis and Growth Factors – Wagner
11. Wed Jan 30. Thyroid Hormone (TH) and Receptor - Wagner

Thurs Jan 31 Last day for paying fees without penalty

12. Fri Feb 1. Paper and Non-genomic Actions of TH – Wagner

Week 5:

13. Tues Feb 5. TH Diseases – Wagner
14. Wed Feb 6. Nuclear Receptors and Apoptotic receptors - Introduction to Steroid Hormone Chemistry – Walter
15. Fri Feb 8. Steroid Hormone Chemistry – Walter

Sun Feb 10 Last day for 50% reduction of tuition fees for standard courses

Week 6:

16. Tues Feb 12. Glucocorticoid and Mineralocorticoid Hormones – Walter
17. Wed Feb 13. Glucocorticoid and Mineralocorticoid Hormones – Walter
18. Fri Feb 15. **Midterm (Walter/Wagner)**

Week 7: Feb 18-22 Reading Break

Week 8:

19. Tues Feb 26. Mineralocorticoid Hormones – Walter
20. Wed Feb 27. Adrenal Hormones and Catecholamines – Intro Male Reproductive System – Walter

Thur Feb 28 Last Day to Drop Courses without Failure

21. Fri Mar 1. Male and Female Reproductive System – Walter

Week 9:

22. Tues Mar 5 Finish Reproductive system; PTH, Vitamin D and Calcitonin – Wagner
23. Wed Mar 6. Calcium and Bone Disease – Wagner
24. Fri Mar 8. Sex and gonadal differentiation – Walter

Week 10:

25. Tues Mar 12. Sex and gonadal differentiation, Estrogen Receptor – Walter
26. Wed Mar 13. Estrogens the Environment (LAN) and Breast Cancer – Walter
27. Fri Mar 15. Estrogen the Environment and Breast Cancer - Walter

Week 11:

28. Tues Mar 19. Paper review - Estrogen the Environment and Breast Cancer - Walter
29. Wed Mar 20. Vitamin D - Breast cancer, Walter - Pancreas, Insulin and Glucagon – Wagner
30. Fri Mar 22. Insulin Receptor / paper – Wagner

Week 12:

31. Tues Mar 26. Diabetes – Wagner
32. Wed Mar 27. Aging and Performance Enhancing Drugs – Walter/Adam Kreek
33. Fri Mar 29. Aging and therapy and Leptin/Fat Hormones and Obesity – Walter

Week 13:

34. Tues Apr 2. Leptin/Fat Hormones and Obesity – Walter
35. Wed Apr 3. Leptin/Fat Hormones and Obesity Endocrine disrupting compounds – Walter
36. **Fri Apr 5. Last Class.** Endocrine Autoimmunity – Walter **Review**

EXAM PERIOD Fri Apr 8- Tues Apr 27

GOOD FRIDAY Aril 19 and EASTER MONDAY Apr 22, the University is closed