BIOL 432 AO1 (CRN 20373)
Molecular Endocrinology
Spring 2020
Tues/Wed/Fri 11:30 am - 12:30 pm
Location: DTB A120

Lecture: David Turpin Building A120 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?id=74377

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 2020"**
Direct URL: https://app-ca.tophat.com/e/406597
6-digit course code: **406597**

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 14th 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 6th 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 2020 (changes will be necessary)

Week 1: SEMESTER STARTS TUES JAN 7 END Fri APR 3 2020

1. Tues Jan 7. Introductions/Outline/Endocrine Overview – Wagner, Walter
2. Wed Jan 8. Endocrine Overview – Walter
3. Fri Jan 10. Endocrine overview (cont.) – Walter

Week 2:

4. Tues Jan 14. Endocrine overview - Hormone Mechanisms -– Walter
5. Wed Jan 15. Hormone Mechanisms -—- SNOW DAY, Uvic Closed.
6. Fri Jan 17. Hormone Mechanisms - Hormone biosynthesis – Walter

Jan 19 Sun Last day for 100% reduction of second-term fees if drop course

Week 3:

7. Tues Jan 21. Hormone biosynthesis, Walter Hypothalamus and Pituitary – Wagner
8. Wed Jan 22. Hypothalamus and Pituitary – Wagner

Wed Jan 22. **Last day for adding courses that begin in the second term**

9. Fri Jan 24. Hypothalamus / Pituitary, Growth Hormone Axis – Wagner

Week 4:

10. Tues Jan 28. Surface Receptors - Walter
11. Wed Jan 29. Surface and Nuclear Receptors – Walter

Friday Jan 31 Last day for paying fees without penalty

12. Fri Jan 31. Diseases of Growth Axis and Growth Factors – Wagner

Week 5:

13. Tues Feb 4. Thyroid Hormone (TH) and Receptor - Paper Wagner
14. Wed Feb 5. Non-genomic Actions of TH and TH Diseases – Wagner
15. Fri Feb 7. Apoptotic receptors – Introduction to Steroid Hormone Chemistry – Walter

Sun Feb 9 Last day for 50% reduction of tuition fees for standard courses

Week 6:

16. Tues Feb 11. Glucocorticoid and Mineralocorticoid Hormones – Walter
17. Wed Feb 12. Glucocorticoid and Mineralocorticoid Hormones (review/practice midterm) – Walter
18. Fri Feb 14. **Midterm (Walter/Wagner)**

Week 7: Feb 17-21 Reading Break

Week 8:

19. Tues Feb 25. Glucocorticoid and Mineralocorticoid Hormones – Walter
20. Wed Feb 26. Glucocorticoid and Mineralocorticoid Hormones – Walter
21. Fri Feb 28. Finish Glucocorticoids, Intro Male and Female Reproductive System – Walter

Saturday Feb 29 Last Day to Drop Courses without Failure

Week 9:

22. Tues Mar 3. Reproductive system cont. - Walter; PTH, Vitamin D and Calcitonin – Wagner
23. Wed Mar 4. Calcium and Bone Disease – Wagner
24. Fri Mar 6. Female Reproductive System – Walter

Week 10:

25. Tues Mar 10. Menstrual cycle– Walter
26. Wed Mar 11. GNRh pulsatile release. Adrenal Hormones and Catecholamines – Walter
27. Fri Mar 13. Adrenal Hormones and Catecholamines. Gonadal differentiation - Walter

Week 11:

28. Tues Mar 17. Sex and gonadal differentiation - Walter
29. Wed Mar 18. Paper review – Low Melatonin, increased Estrogen - the Environment and Breast Cancer - Walter
30. Fri Mar 20. Insulin Receptor / paper – Wagner

Week 12:

31. Tues Mar 24. Diabetes – Wagner
32. Wed Mar 25. Aging and Performance Enhancing Drugs – Walter/Adam Kreek
33. Fri Mar 27. Estrogen, Vitamin D, the Environment and Breast Cancer – Walter

Week 13:

34. Tues Mar 31. ERα, melatonin slide. Leptin/Fat Hormones and Obesity – Walter
35. Wed Apr 1. Leptin/Fat Hormones and Obesity – Walter
36. **Fri Apr 3. Last Class.** Endocrine Autoimmunity – Walter **Review**

EXAM PERIOD Mon Apr 6 - Fri Apr 24

GOOD FRIDAY April 10 and EASTER MONDAY Apr 13, the University is closed