

**BIOL 432 (CRN 20364)**  
**Molecular Endocrinology**  
**Spring 2017**  
**Tues/Wed/Fri 11:30 am - 12:30 pm**  
**Location: SCI/BWC A104**

**Lecture: SCI A104 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](mailto: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.

**Moodle Course Spaces:**

This course uses the university Moodle learning/teaching resource. To access this course, log onto <http://coursespaces.uvic.ca/course/view.php?id=7083>

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 this year. TopHat will be worth 5% where 2.5% are bonus marks and 2.5% are 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 visit [tinyurl.com/StudentStartGuide](http://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 2017**

Direct URL: <https://app-ca.tophat.com/e/706879>

6-digit course code: **706879**

### **Course Text:**

Greenspan's Basic and Clinical Endocrinology by Gardner, D.G. and Shoback, D. 9<sup>th</sup> 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 8<sup>th</sup> edition of the textbook are on reserve in the library. There also may be second hand copies of the 8<sup>th</sup> 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:**

28 % Midterm I – **Friday Feb 3** (50 min in class, cumulative, includes journal article short answer).

No make-up tests; a grade of zero will be given unless a medical excuse is provided.

28 % Midterm II – **Friday Mar 3** (50 min in class, non-cumulative but builds on first section's material, includes journal article short answer but only for articles given in this section). No make-up tests; a grade of zero will be given unless a medical excuse is provided. One Midterm must be completed.

41.5% Final exam - Date TBA, Thursday Apr 7<sup>th</sup> or thereafter 3 hours, cumulative –

only in the sense that we build on concepts established in the first 2 midterms, emphasizes material after Midterm II, includes journal article short answer but only for articles given in this section. Must be completed to receive a final grade for the course. Deferred exams will be handled as outlined in the University of Victoria calendar.

2.5% Course Marks for Top Hat graded activities.

**2.5% Bonus Marks for Top Hat activities.**

**Your final overall mark in the course will be given as a percent based on the following**

**guidelines:** A+ = 90-100%, 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)

If a midterm is missed with a medical excuse, the marks will be split between the other midterm and the final. If you feel that we should be made aware of any special circumstances or accommodations for your participation in the course, please notify us.

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 2017 (changes may be necessary)**

#### **Week 1: SEMESTER STARTS WED JAN 4 END TUES APR 4th for 2017**

1. Wed Jan 4. Introductions/Outline/Endocrine Overview – Wagner, Walter
2. Fri Jan 6. Endocrine Overview – Walter

#### **Week 2:**

3. Tues Jan 10. Endocrine overview (cont.) and hormone biosynthesis – Walter.
4. Wed Jan 11. Hormone Mechanisms - Surface Receptors – Walter
5. Fri Jan 13. Hormone Mechanisms - Surface Receptors – Walter

#### **Week 3:**

6. Tues Jan 17. Hormone Mechanisms - Nuclear and Cell Death Receptors – Walter
- Jan 17 Tues Last day for 100% reduction of second-term fees**
7. Wed Jan 18. Growth Hormone Axis – Wagner
  8. Fri Jan 20. Diseases of Growth Axis and Growth Factors - Wagner
- Jan 20 Fri Last day for adding courses that begin in the second term**

#### **Week 4:**

9. Tues Jan 24. Hypothalamus and Pituitary – Wagner.
10. Wed Jan 25. Hypothalamus and Pituitary – Wagner
11. Fri Jan 27. Pancreas, Insulin and Glucagon; GLP-I Paper - Wagner

#### **Week 5:**

12. Tues Jan 31. Insulin Receptor – Wagner
- Jan 31 Tues Last day for paying fees without penalty**
13. Wed Feb 1. Diabetes – Wagner
  14. **Fri Feb 3. Midterm I (Walter/Wagner)**

#### **Week 6:**

15. Tues Feb 7. Introduction to Steroid Hormone Chemistry – Walter
- Feb 7 Tues Last day for 50% reduction of tuition fees for standard courses**
16. Wed Feb 8. Glucocorticoid Hormones – Walter
  17. Fri Feb 10. Adrenal Hormones and Catecholamines – Walter

#### **Week 7: Feb 13 -17 Reading Break**

#### **Week 8:**

18. Tues Feb 21. Male Reproductive System – Walter
19. Wed Feb 22. Female Reproductive System – Walter
20. Fri Feb 24. Reproductive System – Walter

#### **Week 9:**

21. Tues Feb 28. Finish Reproductive system; PTH, Vitamin D and Calcitonin – Wagner
- Feb 28 Tues Last Day to Drop Courses without Failure**
22. Wed Mar 1. Calcium and Bone Disease – Wagner
  23. **Fri Mar 3. Midterm II (Walter/Wagner)**

#### **Week 10:**

24. Tues Mar 7. Sex and gonadal differentiation, Estrogen Receptor – Walter
25. Wed Mar 8. Estrogen the Environment and Breast Cancer Feeding and Energy Balance – Walter

26. Fri Mar 10. Estrogens the Environment and Breast Cancer – Walter

**Week 11:**

27. Tues Mar 14. Estrogen the Environment and Breast Cancer

28. Wed Mar 15. Leptin/Fat Hormones and Obesity - Walter

29. Fri Mar 17. Thyroid Hormone (TH) and Receptor – Wagner

**Week 12:**

30. Tues Mar 21. Non-genomic Actions of TH – Wagner

31. Wed Mar 22. TH Diseases – Wagner

32. Fri Mar 24. Obesity - Aging and Endocrine Disrupting Compounds – Walter

**Week 13:**

33. Tues Mar 28. EDCs and Hormones for Therapy - Walter

34. Wed Mar 29. Hormones and Cell Death and Autophagy; Endocrine Autoimmunity – Walter

35. Fri Mar 31. Endocrine Autoimmunity – Walter

**Week 14:**

**36. Tues Apr 4. Last Class. Endocrine Autoimmunity – Walter Review**

**GOOD FRIDAY Apr 14 and EASTER MONDAY Apr 17**

**EXAM PERIOD Fri Apr 7- Tues Apr 25**