

BIOL 432 A01 (CRN 20429)
Molecular Endocrinology
Spring 2023
Department of Biology, University of Victoria
Tues/Wed/Fri 11:30 am - 12:20 pm
Elliott Building 167

Lectures will be **synchronous & in-person**.

We will use Brightspace as an additional resource during lectures, and for exams.

Instructors: Dr. Patrick Walter Email: pwalter@uvic.ca Office: Cunn 217
Dr. Nicole Templeman Email: nmtempleman@uvic.ca Office: Petch 053A

Office Hours:

Please reach out to whichever instructor covered the material related to your questions.

Dr. Walter: Cunn 217, Tues and Fri 10:30 am - 11:30 am or by appointment
(email pwalter@uvic.ca, "BIOL 432" in subject line).

Dr. Templeman: by appointment (email nmtempleman@uvic.ca, "BIOL 432" in subject line).

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 both 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: You must have completed one of: BIOL 360, 365, 305A, BIOC 299, 300A, 300B.

UVic strongly encourages the use of masks, particularly in indoor spaces where people are in close proximity. Everyone should continue to do a daily health self-assessment before coming to campus. If you are ill or have symptoms of COVID-19, please stay home until you feel well enough to return to regular activities and no longer have a fever. Refer to UVic's [Health & Safety page](#) for COVID-19 policies and wellness resources.

Brightspace:

We will use the university's Brightspace learning/teaching resource to post important course material, **including lecture notes (in pdf format), activities/quizzes, review questions, lecture recordings**, journal article guidelines, and other important information. Please check Brightspace regularly, as this is also where we will post course announcements.

To access Brightspace, use your Netlink ID and password and log onto Brightspace from your MyPage area <https://www.uvic.ca/mypage/> OR directly: <http://bright.uvic.ca/>.

Lecture recordings:

Sessions in this course will be recorded, to allow students who are not able to attend class (due to illness, etc.) to keep up with the lecture material. Please understand that there may be occasions when lecture recordings are not available due to technical glitches. In addition, the recordings are not intended as a study aid, or as a replacement for in-person attendance for a prolonged period (e.g., the quiz/participation portion of your grade requires your attendance in the classroom). The recordings will be available posted in Brightspace for a maximum of 1 week after the lecture.

To access the recordings, you must click the '**Echo360 videos, Biol432**' link in the Lecture Videos module on Brightspace to gain access to the content. It is necessary for you to enter Echo360 **using this link** to establish the initial relationship between your account, the Brightspace course, and the Echo360 course. This link takes you to your Echo360 library/course within Brightspace, and there you can view the recordings. Please be aware that automated transcription and captioning is at best 70-90% accurate and by nature will include error.

Students who have privacy concerns can contact us to limit their personal information shared in the recordings. If you have other questions or concerns regarding classroom recording and privacy, please contact privacyinfo@uvic.ca.

Course textbook (recommended):

Greenspan's Basic and Clinical Endocrinology by Gardner, D.G. and Shoback, D. 9th Edition. ***This textbook 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. We will **NOT** be covering all material in the textbook. **The primary source of information will be the lecture material covered in class.** Two copies of the 8th edition of the textbook are on reserve in the library.

Journal Articles:

Journal articles will be assigned, and some class time will be allocated to going over the articles and discussing them. 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 midterm exam, and different article(s) for the final exam.

Course Evaluation:

15% - Quiz questions/activities

35% - Midterm exam

50% - Final exam

15% Quiz questions/activities (on Brightspace, during lectures):

Quiz questions and/or activities will be given through Brightspace during lecture time, to review and test your understanding of the material on an ongoing and immediate basis.

10% for correctness on Brightspace quiz questions.

(calculated after dropping each individual's lowest ~30% of quiz question responses)

5% for participation in Brightspace quizzes

(only given to those students who answer **≥70%** of all questions through the semester).

35% Midterm exam – Friday February 18th

50 min online exam: in-class, closed book, on Brightspace. The midterm exam will be cumulative and include journal article questions. The exam may be made up of a mix of multiple choice, fill in the blanks, and short answer questions. If the midterm is missed due to valid grounds (e.g., illness, accident, or family affliction), there will be a makeup exam at a scheduled date. If you feel that we should be made aware of any circumstances, please notify us (see below). **The midterm exam must be written to receive a final grade for the course.**

50% Final exam - Date TBA, during the exam period between **Tues Apr 11 – Wed Apr 26**.

3-hour online exam: closed book, on Brightspace. The exam will be cumulative in the sense that we build on concepts established before the first midterm, but it will emphasize material from after the midterm; it includes journal articles (but only for articles given in this section). The exam may be made up of a mix of multiple choice, fill in the blanks, and short answer questions. **The final exam must be written to receive a final grade for the course.**

Deferred final exams will be handled as outlined in the University of Victoria calendar.

Students are expected to be present for the midterm and final exam on the dates specified. Failure to write the midterm as described above will result in a grade of 0% for the exam, unless for unexpected and unavoidable circumstances (*e.g.*, illness, accident, or family affliction) or valid and documented conflicting responsibilities. Students who cannot attend an exam due to illness are asked to notify us immediately. Students who miss the midterm for one of the legitimate reasons listed above will have the opportunity to write a deferred midterm exam within approximately 10 business days of the midterm date. If there are valid unexpected & unavoidable circumstances or documented conflicting responsibilities (described further in the [academic calendar](#)) that cause a student to miss the final exam but course requirements can be completed before the final grades are submitted, students must submit a [Request for In-course Extension form](#) to the instructors as early as possible. Students must submit a [Request for Academic Concession form](#) if the course requirements (*i.e.*, a deferred final exam) are to be completed after the final grades are submitted. Policies regarding undergraduate student academic concessions also detailed in the [academic calendar](#). **Deferred final exams will be arranged by the instructor or the University.** Travel is not an acceptable reason to miss an exam or the deferred final exam date.

The exams will test your ability to understand and incorporate complex concepts and ideas, and design or interpret experiments. Therefore, memorization of lecture handouts will not be sufficient. You are expected to have completed 3rd year Cell Biology and Biochemistry, and the onus is on you to review pertinent material as needed. We also expect students to take notes during lectures. Copies of the slides will be provided on Brightspace, but these notes should not be considered to be complete; students are also responsible for material discussed during the lectures. For questions regarding lecture material, students should go to the instructor for that particular topic.

Students who have completed both the midterm and the final exam will be considered to have completed the course, and will be assigned a final grade. Failure to complete one or more of these elements will result in a grade of “N” regardless of the cumulative percentage on other elements of the course. An N is a failing grade, and it factors into a student’s GPA as 0. The maximum percentage that can accompany an N on a student’s transcript is 49. **Therefore, you must write both the midterm exam and the final exam to pass the course.**

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).

Student conduct:

We support the university’s commitment to promoting critical academic discourse while providing a respectful and supportive learning environment. All members of the university community have the right to this experience and the responsibility to help create such an environment. The university will not tolerate racism, sexualized violence, or any form of discrimination, bullying or harassment.

Please be advised that, by logging into UVic’s learning systems or interacting with online resources and course-related communication platforms, you are engaging in a university activity. All interactions within this environment are subject to the university’s expectations and policies. Any concerns about student conduct may be reviewed and responded to in accordance with the appropriate university policy. To report concerns about online student conduct: onlineconduct@uvic.ca.

Students are also required to abide by all academic regulations set as set out in the university calendar, including standards of academic integrity. Violations of academic integrity (e.g. cheating and plagiarism) are considered serious and may result in significant penalties. Submitted material must be your own work. The code of professional conduct is posted here: [Student code of conduct](#).

Use of abbreviations and spelling expectations

We use abbreviations in this course as they are commonly used in scientific literature (and they save space in notes and on figures). In scientific literature, the proper use of an abbreviation requires it to be first fully defined. We aim to only use abbreviations after we have defined the term fully.

You are expected to know the **full names** of hormones, receptors, and important molecules that are defined for you (particularly the terms emphasized with purple text in the lecture notes). Within a particular question on an exam, if you have defined the abbreviation within that question OR if an abbreviation is given in the text of question itself, you may use it. Otherwise, please use full names. Half marks will be given for the use of abbreviations, unless a particular question specifies that an abbreviation is acceptable.

Correct spelling is also important, but generally a single letter mistake will still receive full marks. However, please note that sometimes a single letter will change the meaning (e.g. tropic vs trophic), so spelling mistakes will be assessed on a case-by-case basis.

Copyright:

All course content and materials are made available by instructors for educational purposes and for the exclusive use of students registered in their class [1]. The material is protected under copyright law, even if not marked with a ©. Any further use or distribution of materials to others requires the written permission of the instructor, except under fair dealing or another exception in the Copyright Act. Violations may result in disciplinary action under the [Resolution of Non-Academic Misconduct Allegations policy \(AC1300\)](#).

Support services:

All of us benefit from support when faced with difficulties. If you need support, there are services on campus to help you. Please see any of the following:

Centre for Academic Communication <https://www.uvic.ca/learningandteaching/cac/>

Math Assistance Centre <https://www.uvic.ca/science/math-statistics/current-students/undergraduate/msac/index.php>

Counselling Services <https://www.uvic.ca/services/counselling/>

Peer Support Centre <https://uvss.ca/peer-support-centre/>

Indigenous UVic Student Support <https://www.uvic.ca/services/indigenous/students/index.php>

Health & Wellness Services <https://www.uvic.ca/student-wellness/>

Meditation / Spiritual Health <https://www.uvic.ca/student-wellness/wellness-resources/spiritual-health/>

Library <https://www.uvic.ca/library/>

Ombudsperson <https://www.uvic.ca/universitysecretary/senate/appeals/ombudsperson/index.php>

Computer Help Desk <https://www.uvic.ca/systems/about/academic/helpdesk/index.php>

Centre for Accessible Learning:

The University of Victoria is committed to creating a learning experience that is as accessible as possible. If you anticipate or experience any barriers to learning in this course, please feel welcome to discuss your concerns with one of us. If you have a disability or chronic health condition, or think you may have a disability, you may also want to meet with an advisor at the Centre for Accessible Learning (CAL). You can find more information about CAL here: <https://www.uvic.ca/services/cal/>

Territory acknowledgement:

All instructors involved with Biol 432 acknowledge and respect the ləkʷəŋən peoples on whose traditional territory the university stands, and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.

Provisional Lecture Schedule 2023 (changes may be necessary)

SEMESTER STARTS MON JAN 9 AND ENDS THURSDAY APR 6 2023

Week 1:

1. Tues Jan 10. Introductions/Outline/Endocrine Overview – Templeman, Walter
2. Wed Jan 11. Endocrine Overview – Templeman
3. Fri Jan 13. Endocrine Overview – Templeman

Week 2:

4. Tues Jan 17. Peptide Hormone Mechanisms & Biosynthesis – Templeman
5. Wed Jan 18. Peptide Hormone Mechanisms & Biosynthesis – Templeman
6. Fri Jan 20. Peptide Hormone Mechanisms & Biosynthesis – Templeman

Jan 22 SUN Last day for 100% reduction of second-term fees if drop course

Week 3:

7. Tues Jan 24. Surface Receptors – Walter
8. Wed Jan 25. Surface Receptors – Walter

Jan 25 WED Last day for adding courses that begin in the second term

9. Fri Jan 27. Hypothalamus and Pituitary – Walter

Jan 31 TUES Last day for paying fees without penalty

Week 4:

10. Tues Jan 31. Hypothalamus and Pituitary – Walter
11. Wed Feb 1. Growth Hormone, Growth Factors, and Growth-related Diseases – Templeman
12. Fri Feb 3. Pancreatic Hormones: Insulin and Glucagon – Templeman

Week 5:

13. Tues Feb 7. Diabetes and Metabolic Syndrome – Templeman
14. Wed Feb 8. Energy Balance and Obesity – Templeman
15. Fri Feb 10. Energy Balance and Obesity [Journal article] – Templeman

Feb 12 SUN Last day for 50% reduction of tuition fees for standard courses

Week 6:

16. Tues Feb 14. Thyroid Hormones – Templeman
17. Wed Feb 15. Review for midterm – Templeman

18. Fri Feb 17. Midterm (Walter/Templeman)

Week 7: Feb 20-24 Reading Break

Week 8:

Feb 28 TUES Last Day to Drop Courses without Failure

19. Feb 28. Non-genomic Actions of TH and TH Diseases - Nuclear Receptors and Apoptotic receptors - Introduction to Steroid Hormone Chemistry – Walter

20. Wed Mar 1. Introduction to Steroid Hormones and Glucocorticoids – Walter

21. Fri Mar 3. Glucocorticoid and Mineralocorticoid Hormones – Walter

Week 9:

22. Tues Mar 7. Glucocorticoid and Mineralocorticoid Hormones – Walter

23. Wed Mar 8. Glucocorticoid and Mineralocorticoid Hormones – Walter

24. Fri Mar 10. Reproductive Endocrinology – Templeman

Week 10:

- 25. Tues Mar 14. Reproductive Endocrinology – Templeman
- 26. Wed Mar 15. Reproductive Endocrinology – Templeman
- 27. Fri Mar 17. PTH, Vitamin D and Calcitonin – Walter

Week 11:

- 28. Tues Mar 21. Calcium and Bone Disease – Walter
- 29. Wed Mar 22. Adrenal Hormones and Catecholamines – Walter
- 30. Fri Mar 24. Adrenal Hormones and Catecholamines. Gonadal differentiation – Walter

Week 12:

- 31. Tues Mar 28. Guest Lecture, Sarah Jones (Cushing's Disease) - Sex and gonadal differentiation – Walter
- 32. Wed Mar 29. Sex and gonadal differentiation - Paper review – Low Melatonin, increased Estrogen - the Environment and Breast Cancer – Walter
- 33. Fri Mar 31. Aging and Performance Enhancing Drugs – Walter/Adam Kreek – Walter

Week 13:

- 34. Tues Apr 4. Estrogen, Vitamin D, the Environment and Breast Cancer – Walter
- 35. **Wed Apr 5. Last Class.** Endocrine Autoimmunity and REVIEW – Walter

EXAM PERIOD Tues Apr 11 – Wed Apr 26 (final exam date TBD)