

BIOL 432 AO1 (CRN 20432)

Molecular Endocrinology

Spring 2022

Department of Biology, University of Victoria

Tues/Wed/Fri 11:30 am - 12:20 pm

**Location: Zoom (only for online portion of course);
Elliott Building 167 and/or live stream on Brightspace**

Lectures will be **synchronous**. The online portion (currently scheduled until January 24th) will be over Zoom, and the subsequent in-person lectures will be supplemented with an Echo360 live stream, available on Brightspace.

Lectures will usually be recorded (with exceptions due to potential technical glitches).

Zoom link for online lectures:

<https://uvic.zoom.us/j/89124851533?pwd=am1uMUIUVUQ2TmRwVm5FQXpDS2NyUT09>

(please sign in with SSO to UVic first)

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

Top Hat Link for Lectures: <https://app-ca.tophat.com/e/136748>

Top Hat Link for Exams: <https://app-ca.tophat.com/e/706182>

Instructors: Dr. Patrick Walter

Email: pwalter@uvic.ca Office: Cunn 217

Dr. Nicole Templeman

Email: nmtempleman@uvic.ca (“BIOL 432” in subject line”)

Office Hours:

With Dr. Walter: Cunn 217 or Online Zoom Tues and Fri 10:30 am - 11:30 am or by appointment

<https://uvic.zoom.us/j/88067073591?pwd=R3NCVURsMG1rVzNieEMyeHVkL2pOQT09> (please sign in with SSO to UVic first).

With 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.

In accordance with the current province-wide guidelines (specifically, the Order of the Provincial Health Officer on Face Coverings (COVID-19) – October 29, 2021), masks are required in all public indoor settings, which includes classrooms and common areas.

Brightspace:

We will use the university's Brightspace learning/teaching resource to post course material, **including lecture notes (in pdf format) and lecture recordings**, journal article guidelines, and other important information. Please check Brightspace regularly, as this is 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 and live-streaming:

Be aware that sessions in this course may be recorded, to allow students who are not able to attend to watch later. The recordings will usually be live-streamed and later posted in Brightspace. Students who have privacy concerns can contact us, and will have the option to limit their personal information shared in the recording. If you have other questions or concerns regarding class recording and privacy, please contact privacyinfo@uvic.ca.

To view the live-streamed lectures and 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** at least once, in order to establish the initial relationship between your account, the Brightspace course, and the Echo360 course. Clicking this link takes you to your Echo360 library/course within Brightspace, and there you can open the live stream (which is signified by a green dot) or access the other recordings. Lecture recordings will be available for the duration of the semester. Please be aware that automated transcription and captioning is at best 70-90% accurate and by nature will include error.

Top Hat:

We will be using Top Hat as an additional resource. Top Hat-specific activities will be worth 10% of the course grade, where 4% are bonus participation marks and 6% 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 Top Hat account.

You can visit <https://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. Also, <https://support.tophat.com/s/> is a great way to get a lot of information, as there is a wide variety of articles uploaded there that can help.

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 2022**

Direct URL: <https://app-ca.tophat.com/e/136748>

6-digit course code: **136748**

For exams: **Biology 432: Exams for Molecular Endocrinology - Spring 2022**

Direct URL: <https://app-ca.tophat.com/e/706182>

6-digit course code: **706182**

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 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 secondhand 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 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, and different articles on the final. More details regarding the journal articles and sample exam questions will be available on Brightspace. Journal article discussion questions will be posted in Top Hat during the relevant lectures, as part of our discussions about these journal articles.

Course Evaluation:

10% - Top Hat-based activities (during lectures, etc.)

35% - Midterm

55% - Final Exam

10% Top Hat-based activities:

6% Course Marks for correct answers on Top Hat-graded activities (6% for correctness).

4% Bonus Marks for participation in Top Hat-based activities (for student with > 70% participation).

35% Midterm – Friday February 18th

using Biology 432: Exams for Molecular Endocrinology - Spring 2022

Direct URL: <https://app-ca.tophat.com/e/706182>

6-digit course code: 706182

50 min online exam: in-class, closed book. The 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 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 (see below).

55% Final exam - Date TBA, during the exam period between **Mon Apr 11 – Fri Apr 29.**

3-hour online exam; closed book. The exam will be cumulative in the sense that we build on concepts established before the first midterm, but emphasizes material 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. Must be completed to receive a final grade for the course. Deferred 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 illness, accident, or family affliction. 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, documented reasons listed above will have the opportunity to write a deferred midterm exam within approximately 10 business days of the midterm date. If illness, accident, or family affliction causes a student to miss the final exam, students are required to submit a request for academic concession. Policies regarding undergraduate student academic concessions and deferrals are also detailed on the [Undergraduate Records](#). Students must submit a [Request for Academic Concession](#). **Deferred final exams will be arranged by the instructor or the University.** Travel is not an acceptable reason to miss the deferred final exam date.

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 of Victoria'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](#).

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.

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 are in need of 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/>

Health Services <https://www.uvic.ca/services/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 the instructors involved with Biol 432 acknowledge and respect the ləkʷəŋən peoples on whose traditional territory the university stands, and the Songhees, Esquimalt and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.

<https://www.uvic.ca/services/indigenous/facultystaff/territory-acknowledgment/index.php>

Provisional Lecture Schedule 2022 (changes will be necessary)

SEMESTER STARTS MON JAN 10 AND ENDS THURSDAY APR 7 2022

Week 1:

1. Tues Jan 11. Introductions/Outline/Endocrine Overview – Templeman, Walter
2. Wed Jan 12. Endocrine Overview – Templeman
3. Fri Jan 14. Endocrine Overview – Peptide Hormone Mechanisms – Templeman

Week 2:

4. Tues Jan 18. Peptide Hormone Mechanisms – Templeman
5. Wed Jan 19. Peptide Hormone Mechanisms and Biosynthesis – Templeman
6. Fri Jan 21. Peptide Hormone Biosynthesis – Templeman

Jan 23 SUN Last day for 100% reduction of second-term fees if drop course

Week 3:

7. Tues Jan 25. Surface Receptors – Walter
8. Wed Jan 26. Surface Receptors, Hypothalamus and Pituitary – Walter

Jan 26 WED Last day for adding courses that begin in the second term

9. Fri Jan 28. Hypothalamus and Pituitary - Walter

Jan 31 MON Last day for paying fees without penalty

Week 4:

- 10. Tues Feb 1. Growth Hormone Axis – Walter
- 11. Wed Feb 2. Diseases of Growth Axis and Growth Factors – Templeman
- 12. Fri Feb 4. Insulin signaling – Templeman

Week 5:

- 13. Tues Feb 8. Diabetes, Metabolic Syndrome, and Obesity – Templeman
- 14. Wed Feb 9. Diabetes, Metabolic Syndrome, and Obesity – Templeman
- 15. Fri Feb 11. Diabetes, Metabolic Syndrome, and Obesity – Templeman

Feb 13 SUN Last day for 50% reduction of tuition fees for standard courses

Week 6:

- 16. Tues Feb 15. Thyroid Hormone (TH) and Receptor - Paper – Templeman
- 17. Wed Feb 16. Review for midterm – Templeman
- 18. Fri Feb 18. **Midterm** (Walter/Templeman)

Week 7: Feb 21-25 Reading Break

Week 8:

Feb 28 MON Last Day to Drop Courses without Failure

- 19. Tues Mar 1. Non-genomic Actions of TH and TH Diseases - Nuclear Receptors and Apoptotic receptors - Introduction to Steroid Hormone Chemistry – Walter
- 20. Wed Mar 2. Introduction to Steroid Hormones and Glucocorticoids – Walter
- 21. Fri Mar 4. Glucocorticoid and Mineralocorticoid Hormones – Walter

Week 9:

- 22. Tues Mar 8. Glucocorticoid and Mineralocorticoid Hormones – Walter
- 23. Wed Mar 9. Glucocorticoid and Mineralocorticoid Hormones – Walter
- 24. Fri Mar 11. GnRH pulsatile release - Reproductive Endocrinology – Templeman

Week 10:

- 25. Tues Mar 15. Reproductive Endocrinology – Templeman
- 26. Wed Mar 16. Reproductive Endocrinology and Aging – Templeman
- 27. Fri Mar 18. PTH, Vitamin D and Calcitonin – Walter

Week 11:

- 28. Tues Mar 22. Calcium and Bone Disease – Walter
- 29. Wed Mar 23. Adrenal Hormones and Catecholamines – Walter
- 30. Fri Mar 25. Adrenal Hormones and Catecholamines. Gonadal differentiation – Walter

Week 12:

- 31. Tues Mar 30. Guest Lecture, Sarah Jones (Cushing's Disease) - Sex and gonadal differentiation – Walter
- 32. Wed Mar 30. Sex and gonadal differentiation - Paper review – Low Melatonin, increased Estrogen - the Environment and Breast Cancer – Walter
- 33. Fri Apr 1. Aging and Performance Enhancing Drugs – Walter/Adam Kreek – Walter

Week 13:

- 34. Tues Apr 5. Estrogen, Vitamin D, the Environment and Breast Cancer – Walter
- 35. **Wed Apr 6. Last Class.** Endocrine Autoimmunity and REVIEW – Walter

EXAM PERIOD Mon Apr 11 – Fri Apr 29 (final exam date TBD)