# BIOL 508

## Biology of the Cell Cycle

Fall Term 2021

**CALENDAR DESCRIPTION**

Cell proliferation underlies development and tissue renewal and is implicated in many diseases. Our universal model of eukaryotic cell cycle control is based on studies in a number of model systems. The course will focus on control mechanisms, deriving information from systems as diverse as yeast and human cells. Introductory material will follow D. Morgan's book, The Cell Cycle, and then focus on the current research literature. Students will give an introductory as well as a research level seminar and write a research paper on the theme of their choice.

**PREREQUISITE** BIOL 330 or BCHM 218 (MBIO218). BIOL 334 or (BCHM 315 and BCHM 316) or BCHM 310. Level 4 and registration in a Biology Honours Plan (BIOL-M-BSH, BIOL-P-BSH, BIMA-P-BSH, BIPS-P-BSH, BTEC-P-BSH, EBIO-P-BSH) and a minimum GPA of 2.0 in the Biological Foundations List and (BIOL 330/3.0 or BIOL 334/3.0 or BIOL 341/3.0 or BIOL 430/3.0) or permission of the Department.

**SCHEDULE**

**Refer to the University Timetable for scheduling details.**

| | |
|---|---|
| **Instructor** | **Dr. Paul Young** |
| **Instructor Contact** | (613) 533 6148 paul.young@queensu.ca |
| **Office Hours** | Rm. 2443 Bioscience Complex. No specific times. |
| **TAs:** | None |
| **TA Office Hours** | None |

**Learning Objectives**

The cell cycle course is a seminar module within our Biology 537 Honour's thesis program. Cell proliferation is at the heart of developmental biology and many human diseases. The course focuses on the control of cell growth and cell division, taking a somewhat historical view starting with David Morgan's book, The Cell Cycle: Principles of Control ( cc_chapter_01.qxd (ucsf.edu) ) and extending it up to the present time. Students will be exposed to the relevant major model systems (yeast, Drosophila, Xenopus) and to the mammalian system. The course is wide ranging and deals with genetics, biochemistry and cell physiology. The course has a substantial growth control/cancer biology component but uses this to focus on the fundamentals of control in all systems. Students will give seminars based on the text as well as from their own readings in the research literature. The students will participate in peer reviews and marking.

**Learning Hours**

| *Teaching method* | | *Average hours per week* | *Number of weeks* | *Total hours* |
|---|---|---|---|---|
| In-class | Lecture | | | |
| | Seminar | 3 | 12 | 36 |
| | Laboratory | | | |
| | Tutorial | | | |

| | | | | |
|---|---|---|---|---|
| | Practicum | | | |
| | Group learning | | | |
| | Individual instruction | | | |
| Other | Online activity | | | |
| | Off-campus activity | | | |
| | Private study | 7 | 12 | 84 |
| Total hours on task | | | | **120** |

**Course Outline**

Seminar schedules will be arranged by mutual consent when class convenes.

**Textbooks/Readings**

The Cell Cycle, David Morgan

**Grading Scheme**

| Component | Weight | Due dates |
|---|---|---|
| Initial general seminar | 20% | TBA |
| Literature review based seminar | 30% | TBA |
| Research paper | 40% | TBA |
| Participation | 10% | TBA |
| **Assignment due dates are distributed over the term.** | | |

**Grading Method**

All components of this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your numerical course average to a letter grade according to Queen's Official Grade Conversion Scale:

***Arts & Science Letter Grade Input Scheme***

| Assignment mark | Numerical value for calculation of final mark |
|---|---|
| A+ | 93 |
| A | 87 |
| A- | 82 |
| B+ | 78 |
| B | 75 |
| B- | 72 |
| C+ | 68 |
| C | 65 |
| C- | 62 |
| D+ | 58 |
| D | 55 |
| D- | 52 |
| F48 (F+) | 48 |
| F24 (F) | 24 |
| F0 (0) | 0 |

Your course average will then be converted to a final letter grade according to Queen's Official Grade Conversion Scale:

***Queen's Official Grade Conversion Scale***

| Grade | Numerical Course Average (Range) |
|---|---|
| A+ | 90-100 |
| A | 85-89 |
| A- | 80-84 |
| B+ | 77-79 |
| B | 73-76 |
| B- | 70-72 |
| C+ | 67-69 |
| C | 63-66 |
| C- | 60-62 |
| D+ | 57-59 |
| D | 53-56 |
| D- | 50-52 |
| F | 49 and below |

**Academic Integrity and Queen's Code of Conduct**

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments and conduct conform to the principles of academic integrity. Information is available in the Arts and Science Calendar (see Academic Regulation 1 - http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations, on the Arts and Science website (see http://www.queensu.ca/artsci/academics/undergraduate/academic-integrity), and at Biology's website (http://www.queensu.ca/biology/undergrad/integrity.html) and from the instructor of this course.

Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulations on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

**Accommodation Policy, Exam Conflicts, and Other Conflicts**

Students who feel they need accommodations for disabilities or extenuating circumstances, or have a conflict between exams or other commitments should consult the Biology Department's website for details about how to proceed (http://www.queensu.ca/biology/undergrad/integrity.html). In general, the earlier a course coordinator is apprised of an extenuating circumstance, the more likely an accommodation can be made. Students are encouraged to be proactive in anticipating difficulties, when it is possible to do so.

Students may apply to write a make-up or deferred exam if they have an exam conflict as defined in the Academic Regulations of the Faculty (See Arts and Science Calendar Regulation 8 - http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations). In this case, the student should report to the Exams Office first to verify that there is a genuine exam conflict. Biology professors will not consider your situation to be a conflict unless it meets the criteria set out by the Faculty

of Arts and Sciences. Students may request a make-up or deferred exam if they have an exam conflict with off-campus travel associated with a field course (e.g BIOL-307/3.0 or 407/3.0) that is held during the fall or winter terms.

**Copyright**

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**Accommodation of Disabilities**

Queen's University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact the Disability Services Office (DSO) and register as early as possible. For more information, including important deadlines, please visit the DSO website at: http://www.queensu.ca/hcds/ds/