

September - December 2011

Biology 2601a: Organismal Physiology

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| <p>Instructor: Dr Brent Sinclair Department of Biology BGS 2078 Email: bsincla7@uwo.ca</p> <p>Dr Sinclair be available in class after lectures, or in BGS 2078 during his office hours: Tuesday 8-9 am Wednesday 12-1 pm Thursday 4-5 pm.</p> | <p>Lab coordinator: Ms Jackie Sparks Department of Biology CHB 388 Email: jsparks@uwo.ca Phone 519-661-211 x 86795</p> |
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Lectures: Tuesday & Thursday, 12.30 pm. NS145

Laboratories: Please see page 7 for the lab schedule and room assignments. Please note that there are two weeks of lab streams, alternating between tutorial activities (held in a classroom) and lab activities (held in the lab). The computer tutorial will also be held in a different location – please see the lab manual for details.

The first laboratory will be held in the week of 12 September.

Dr Sinclair's office hours: Tuesday 8-9 am, Wednesday 12-1 pm, Thursday 4-5 pm.
 BGS 2078

Dr. Sinclair is also available by appointment. Email him to make an appointment, please do not phone. Note that appointments outside regular office hours may need to be made a week or more in advance.

Course Summary:

The goal of physiology is to understand how organisms work. This course will take an integrative approach, looking at how molecular, biochemical, and chemical aspects influence the evolution and function of physiological systems in multicellular plants and animals. An emphasis will be placed on interpreting relationships from graphs and, in the labs, on acquiring and communicating information. Many students find this course difficult – unlike many other science courses at second year level, the lab component requires a lot of writing, and you will need to balance your time carefully.

Lecture Topics include

Temperature

Gas Exchange

Energy and metabolism

Water and salt balance

Circulatory and transport systems

Email

Please include 'BIOL 2601a' in the subject line of all emails about this course, and only send emails from your uwo account. For your protection, I will not reply to emails about this course that emanate from non-uwo addresses.

Please begin your emails with a salutation ("Dear Dr Sinclair") and end with some identifier of who you are ("Joseph P. Student").

Evaluation:

To pass this course, you will be required to get at least 23/45 in the lab component, and at least 28/55 in the lecture component.

| Labs: | | Lecture: | |
|-----------------------------|----|---------------------|----|
| Plagiarism Quiz (online) | 1 | Lecture Quizzes (5) | 5 |
| Animal Ethics quiz (online) | 1 | Mid-term: | 15 |
| Best lab report | 25 | Final: | 35 |
| Second-best lab report | 12 | | |
| Least-best lab report | 6 | | |

TOTAL for LABS: 45%

TOTAL FOR LECTURE: 55%

Your final grade for the course will be calculated as the sum of your marks for each of the components. This mark will then be rounded to the nearest integer. No marks will be awarded for arbitrary reasons, and there will be no after-the-fact changes (e.g. of 69 to 70 %). Please note that in this course you will be judged in accordance with the outline above. Marks are not awarded with reference to external requirements, like medical school entry criteria, or your personal need for a particular average. Please do not ask.

Plagiarism Quiz: The plagiarism quiz will be a brief multiple choice test on WebCT that will check that you have read and understood the associated material on plagiarism prepared by Linda Dunn at the Taylor Library. You have 3 attempts at the test. You must complete the Plagiarism quiz by 11.59pm on Friday September 30th 2011. No extensions will be granted.

Animal Ethics Quiz: This will be a brief WebCT multiple choice quiz covering the material in the Animal Ethics lecture (which is online) and a WebCT tutorial. You will have 3 attempts at the quiz. It is designed to give you further opportunity to think about the ethics and mechanics of using animal models in research. The quiz will be available from Monday September 12th until 11.59 pm on Friday October 7th 2011. No extensions will be granted.

Lectures: Attendance at the lectures is not compulsory. However, the downloadable handouts are not necessarily complete, and you are responsible for all material presented in the lectures, regardless of your attendance. Note that several of the lectures cover topics that are treated only superficially in the text, and that the animal use ethics tutorial is examinable.

Readings: Currently, no publisher produces a textbook that includes both plant and animal physiology at a level that is appropriate for this course. As a result, we will be utilizing material from two different texts:

Hill, R.W., Wyse, G.A. & Anderson, M. 2008. *Animal Physiology, Second Edition*. Sinauer, Sunderland, MA.

Taiz, L. & Zeiger, E. 2010. *Plant Physiology, Fifth Edition*. Sinauer, Sunderland, MA.

To keep (your) costs down, these are available cheaply as an e-text which includes only the chapters covered in class. There will be a link on WebCT that will allow you to purchase the eText direct from the publisher. You can also purchase a bundled looseleaf version of both textbooks at the bookstore (this costs less than one of the hardcover texts). The hardcover texts are also available in the bookstore (but are rather expensive). Multiple copies of both of the textbooks are on 2 h reserve at the Taylor library, as are several other animal and plant physiology text books. Most current animal or plant physiology texts will also give adequate coverage of the material in the course. If you choose to use earlier editions of the textbooks, or some other text book, you will not receive any assistance in identifying suitable readings, although the index and table of contents should be sufficient.

Each lecture will end with reference to additional reading that expands upon the material covered in the lecture. The aim of the readings is to give you broader and deeper information, and also give you a different form of explanation. The material in the lectures and laboratories defines the examinable material, so you are advised to make notes first from the lectures, and then use the readings to clarify and increase your knowledge and understanding.

WebCT: As well as the lecture quizzes (see below), much material, including handouts (usually available 24 h before the lecture), additional reading, pictures and some assignments will appear on the WebCT site. In addition, important announcements will be made on WebCT, and you are responsible for obtaining this information. The discussion boards are also there to discuss concepts, to help each other out, and to ask content-related questions. I and a TA will keep tabs on the discussions, and weigh in where necessary, but most times questions will be able to be answered by other members of the class. There will also be an opportunity to nominate topics for revision lectures using the discussion boards.

In addition, your marks will be regularly updated under 'my grades' in WebCT. Please keep an eye on these and don't be afraid to query any apparent inconsistencies between what you thought you got and what is on WebCT (mistakes can creep in). Please use your brain when assessing these marks. You will not have marks for things that have not yet been marked, and if (for example) you miss the mid-term and it will be re-weighted according to the final, you will not receive a mid-term grade until you have written the final exam.

Lab Reports

Marks: You will write three full lab reports in this course. The aim is to allow you to learn from your mistakes and get the best marks you can in the lab reports. Each lab report will be assigned a mark out of 100. The weighting of the full lab reports will be such that the lab report in which you received the highest mark will be worth 25 % of your final mark, while your next-best lab report will garner 12 % of the final mark, and the lab report in which you performed least well will be worth only 6 %.

Deadlines: The deadline for each lab will be the beginning time of your usual lab period in the week in which your lab is due. Thus, if your laboratory runs from 8.30 am to 11.30 am on Wednesdays, your lab report is due at or before 8.30 am on Wednesday. **Late submission (e.g. 8.35 am in the previous example) will result in a penalty of 50 % of your mark.** Late submission to turnitin.com or lack of a cover sheet will result in the same late penalties. **Note that students whose Mouse lab reports would ordinarily be due on 10 October (Thanksgiving Monday) instead need to submit their reports by 10.00 am on Tuesday 11 October.** If you will be unable to meet that deadline, you may submit your lab report before the beginning of the Thanksgiving weekend.

Submitting lab reports: To submit your lab report, you must perform the following actions by the deadline:

1. Submit an electronic copy to turnitin.com.
2. Print out the submission receipt from turnitin.com and attach it to the front of your lab.
3. Download, print out, sign and attach a two page cover sheet to your hard copy. This attests that the copy you have submitted to turnitin is identical to the hard copy submitted for marking, and conveniently also has the marking scheme on it.
4. Submit your hard copy in the appropriate box outside the laboratory.

Note that if you fail to perform one or more of the above steps, we will consider your work 'not submitted' and you will receive a mark of zero for the assignment and a late penalty reflecting the amount of time it takes for you to fulfill the requirements.

Please note that computer problems are not considered a valid excuse for failing to hand a lab report in on time. You are expected to keep adequate backups of your data, you are responsible for ensuring your files are saved in a format suitable for uploading to turnitin.com, and you are responsible for managing your time in such a way that you can absorb minor problems.

Lab reports will be subject to submission to turnitin.com for textual similarity review by the commercial plagiarism software under license to the University. All lab reports submitted to the turnitin.com system will be included as source documents in the reference database for the purpose of detecting plagiarism in lab reports subsequently submitted to the system. Use of this service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Labs are marked according to a rubric and the marking scheme, and the TAs are remarkably consistent in their markings (believe me, I've tested this!) Students inevitably believe that their TA is harsher than their friends', but experience over many years suggests that this is not the case. If you are unhappy with the marking of your lab report, the first thing you should do is speak to your TA. **Please do not approach your TA with a query about the marking until 24 h after the report has been returned.** Please send a polite email to them that outlines your concerns and to make an appointment to discuss them with your TA. If you have spoken to your TA and still have concerns, you may request that Dr Sinclair re-mark your lab report (which he will do

from scratch). Note that this mark will be final, and that re-marking assignments may result in an increase, a decrease, or no change to your mark on the assignment. To have your assignment re-evaluated, you must contact Dr Sinclair by email within 14 days of receiving your mark.

Exams:

Mid-term Exam: The mid-term exam will consist of 40 multiple-choice questions covering the lecture material up to, and including, Lecture 12 on Tuesday October 18th. It will be of 1 hour duration. It will be held on Saturday October 29th 2011 at 2.00 pm. You will be notified of room assignments during class and/or via OWL.

There will be a pre-write of the mid-term for those with documented timetable clashes. The procedure for obtaining permission to sit the pre-write will be outlined in class. There will be no make-up exam for the mid-term. If you miss it with a valid non-timetable related excuse (from the Dean's office), your final will be re-weighted, if you miss the mid-term without a valid excuse, you will get 0.

Final Exam: The final exam will be of 2 h duration, will consist of 70-80 multiple choice questions, and will cover all of the material covered in the course, including lecture material and the labs, and the plagiarism and ethics tutorials, although the emphasis will be on lectures. The date and location of the final exam will be determined by the Registrar's office.

The make-up exam for the final exam (for those with valid excuses from the Dean's office only) will be held at a single date, time and place that will be announced later in the course, and available on WebCT. If you are unable to attend the make-up exam, you may sit the 2601a exam during one of the scheduled exam slots for this course in Fall 2012. The make-up exam will consist of some combination of multiple-choice and written answers, which will be advised prior to the exam date.

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Lecture Quizzes will be available on OWL during weeks identified in the lab manual and on topics identified in the lectures. You will have a five day period to complete each quiz, which will begin at 12.01 am on the Monday morning and end at 11.59 pm on the Friday night. No extensions will be granted, and it is your responsibility to know when the quizzes are and to seek them out. You will have up to three attempts at each quiz, and your highest mark will be taken for that quiz. Each quiz is worth 1% of your final mark.

Electronic devices: Use of pocket calculators, iPods, Blackberries, cellphones, laptop computers, GPS units, digital cameras, metal detectors, clinometers or any other electronic devices is neither necessary nor allowed during exams.

Missing an exam, lab report or lab because of illness or other circumstances:

If you miss an exam or test or lab report because of genuine circumstances, please take appropriate documentation to the Dean's office. The counselor will contact Dr Sinclair directly. (For bureaucratic info on this, see <http://www.uwo.ca/univsec/handbook/appeals/medical.pdf>). Note that you should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here: https://studentservices.uwo.ca/secure/medical_document.pdf).

If you are going to miss a laboratory, please email Jackie Sparks as soon as you can, and she will try to arrange for you to attend another scheduled lab that week. Make-up labs will not be run, and the number of students in each lab is limited by health and safety regulations. Appropriate documentation (via the Dean's office, as above) may be required.

Being 'very busy' is not considered a valid excuse. We are all busy, and the deadlines in this course are set well in advance. It is up to you to manage your time in a way that allows you to meet them.

Academic Integrity: As you know, we take academic integrity seriously at Western. Plagiarism in lab reports or cheating in exams will be viewed as academic offenses and dealt with as such. Penalties range from severe mark penalties to failure of the course or expulsion from the University. More information on academic integrity is available via the plagiarism links on WebCT. Last year, 4% of the class was penalized for plagiarism in one or more lab reports.

Common sources of plagiarism include: making use of a previous year's report and deliberately or inadvertently copying it; large similarities arising from lab partners working together and (most commonly) overt copying of someone else's report, usually without their permission. In cases of plagiarism, both the copier and copy-ee will be penalized, and you are thus advised to guard the text of your lab report closely. Please bear in mind that turnitin.com does not conduct analyses for within-course plagiarism until after the deadline has expired, and that previous years' lab reports are stored in the turnitin.com database.

Laboratories:

Part of the joy of physiology is working in the laboratory, part of the sadness is that we must sacrifice animals to make some measurements. The laboratories will involve working with live animals, please respect the animals you work with. All laboratory work with live animals has been approved by the University's Council on Animal Care. An online tutorial will allow you to explore the ethics of using animals in research. If you have a genuine, documented and deeply-held belief that prevents you from working with live animals, please contact Dr. Sinclair by email to arrange an appointment as soon as possible after the beginning of term.

The laboratories do not just involve experimental work. An important aspect of being a scientist is the ability to find, integrate and communicate information. An important goal of the laboratories is to allow you to develop these skills.

Attendance of the laboratories is compulsory. A roll will be taken each week of the laboratories and tutorials. There will be no mark penalty for failing to attend labs or tutorials, however if you do miss labs or tutorials, the TAs will not provide any out-of-hours assistance for you in the preparation of your lab reports.

Prerequisites:

A minimum mark of 60 % on Biology 022 or 023 or 1222 or 1223. Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

BIOL 2601a Laboratory Schedule Fall 2011

| Week Beginning | Lab Week a (Sections 002-017) | Lab Week b (Sections 018-029) | Other Happenings |
|-----------------------|--|---|--|
| 12 September | Mouse Lab | No Lab | |
| 19 September | Computer tutorial | Mouse Lab | |
| 26 September | Writing and Peer review tutorial | Computer tutorial | Lecture Quiz 1 Plagiarism quiz must be completed by 30 November |
| 3 October | No Lab Mouse Lab report due | Writing and Peer review tutorial | Ethics quiz must be completed by 7 Oct |
| 10 October | No Lab | Mouse Lab report due (Deadline 10 am Tuesday for Monday lab) | Thanksgiving (Monday) |
| 17 October | Photosynthesis lab | No lab | Lecture Quiz 2 |
| 24 October | Photosynthesis tutorial Mouse lab report returned | Photosynthesis lab | Mid-term exam |
| 31 October | Crayfish Lab Photosynthesis report due | Photosynthesis tutorial Mouse lab report returned | Lecture Quiz 3 |
| 7 November | Crayfish tutorial | Crayfish Lab Photosynthesis report due | |
| 14 November | Photosynthesis lab returned | Crayfish tutorial | Lecture Quiz 4 |
| 21 November | No Lab Crayfish Lab report due | Photosynthesis lab returned | |
| 28 November | No Lab | No Lab Crayfish Lab report due | Lecture Quiz 5 |
| 5 December | Crayfish report returned | Crayfish report returned | Tuesday: Last lecture Dec 7 end of term |

Questions about missed labs? See Jackie Sparks. BGS 3017 (jspark@uwo.ca)

Questions about lab material or lab marking? See your TA first

BIOL 2601a Room assignments Fall 2011

| Lab section | Day | Week | Labs | | Tutorials | |
|-------------|-----|------|------------|--------|------------|----------|
| | | | Time | Room | Time | Room |
| 002 | Mon | a | 8.30-11.30 | CHB390 | 9.30-11.30 | BGS 1056 |
| 003 | Mon | a | 9.30-12.30 | CHB382 | 9.30-11.30 | BGS 1056 |
| 004 | Mon | a | 1.30-4.30 | CHB390 | 2.30-4.30 | BGS 0153 |
| 005 | Mon | a | 2.30-5.30 | CHB382 | 2.30-4.30 | BGS 0153 |
| 006 | Tue | a | 8.30-11.30 | CHB390 | 9.30-11.30 | BGS 0165 |
| 007 | Tue | a | 9.30-12.30 | CHB382 | 9.30-11.30 | BGS 0165 |
| 008 | Tue | a | 1.30-4.30 | CHB390 | 2.30-4.30 | BGS 0153 |
| 009 | Tue | a | 2.30-5.30 | CHB382 | 2.30-4.30 | BGS 0153 |
| 010 | Wed | a | 8.30-11.30 | CHB390 | 9.30-11.30 | BGS 1056 |
| 011 | Wed | a | 9.30-12.30 | CHB382 | 9.30-11.30 | BGS 1056 |
| 012 | Wed | a | 1.30-4.30 | CHB390 | 2.30-4.30 | BGS 1056 |
| 013 | Wed | a | 2.30-5.30 | CHB382 | 2.30-4.30 | BGS 1056 |
| 014 | Thu | a | 8.30-11.30 | CHB390 | 9.30-11.30 | WSC 240 |
| 015 | Thu | a | 9.30-12.30 | CHB382 | 9.30-11.30 | WSC 240 |
| 016 | Thu | a | 1.30-4.30 | CHB390 | 2.30-4.30 | CHB 9 |
| 017 | Thu | a | 2.30-5.30 | CHB382 | 2.30-4.30 | CHB 9 |
| 018 | Mon | b | 8.30-11.30 | CHB390 | 9.30-11.30 | BGS 1056 |
| 019 | Mon | b | 9.30-12.30 | CHB382 | 9.30-11.30 | BGS 1056 |
| 020 | Mon | b | 1.30-4.30 | CHB390 | 2.30-4.30 | BGS 0153 |
| 021 | Mon | b | 2.30-5.30 | CHB382 | 2.30-4.30 | BGS 0153 |
| 022 | Tue | b | 8.30-11.30 | CHB390 | 9.30-11.30 | BGS 0165 |
| 023 | Tue | b | 9.30-12.30 | CHB382 | 9.30-11.30 | BGS 0165 |
| 024 | Tue | b | 1.30-4.30 | CHB390 | 2.30-4.30 | BGS 0153 |
| 025 | Tue | b | 2.30-5.30 | CHB382 | 2.30-4.30 | BGS 0153 |
| 026 | Wed | b | 8.30-11.30 | CHB390 | 9.30-11.30 | BGS 1056 |
| 027 | Wed | b | 9.30-12.30 | CHB382 | 9.30-11.30 | BGS 1056 |
| 028 | Wed | b | 1.30-4.30 | CHB390 | 2.30-4.30 | BGS 1056 |
| 029 | Wed | b | 2.30-5.30 | CHB382 | 2.30-4.30 | BGS 1056 |