Medical Biophysics 3501A/Biophysics 9501A  
Biophysics of Transport Systems  
Fall Term 2018

This course describes the physiology and biophysics of the cardiovascular system (in health and disease), blood flow control and red blood cell distribution, and vascular mechanics in the microcirculation and large vessels, surface energy and interactions at biological interfaces such as the lung, diffusive and convective transport and exchange.

**Lectures and Tutorials Schedule**

See timetable:  
http://studentservices.uwo.ca/secure/timetables/mastertt/ttindex.cfm

For graduate students: (a) choose *Medical Biophysics* from the drop down menu nested in the *SUBJECT* textbox  
(b) then type 3501A in the *COURSE* text box  
(c) then click on *SUBMIT* button on the right side of the computer screen

You now have the class and tutorial schedule for Biophysics 9501A which is the graduate equivalent for the undergraduate course Medical Biophysics 3501A

*Please contact the course instructor if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.*

**Instructor Information**

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<tr>
<th>Instructor</th>
<th>Email</th>
<th>Office</th>
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<th>Office Hours</th>
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<tr>
<td>Dwayne N. Jackson, PhD (Course Co-ordinator)</td>
<td><a href="mailto:djackso9@uwo.ca">djackso9@uwo.ca</a></td>
<td>M404</td>
<td>82815</td>
<td>During Tutorials</td>
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**TEACHING ASSISTANTS:**

To Be Announced
OWL (Formerly WebCT):
Students with Owl issues should contact the Computer Support Centre at 519 661-3800

LEARNING OUTCOMES
By the end of the course students will be able to:

(i) Use the concepts of vascular pressure, geometry and elasticity along with blood viscosity and velocity to assess energy storage and convective transport throughout the body. Use the concepts of partial pressure, diffusion, and microvascular geometry and blood flow to assess diffusive transport in tissues. Analyze series and parallel circuits to determine the effects of the control of vascular resistance on blood pressure and flow under normal and pathological conditions.

(ii) Use problem solving to integrate concepts from each lecture in an effort to understand and describe the biophysics of the circulation in healthy and diseased states.

APPROACH

*Lecture-discussion periods*: Presentation of material supported by class discussion and demonstrations. Frequent ‘in class’ quizzes are provided to apply knowledge and to help students and lecturers assess progress.


Course Materials

There is no formal text for the course. Instructional material will be provided electronically on OWL and students may be directed to on-line references.

Evaluation

*Component % of Final Mark*

In class quizzes:  20%
Midterm test:       30%
Final exam:        50%
Additional Information/Statements

Statement on Academic Offences
“Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following website: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.”

“Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar).”

THE USE OF ELECTRONIC DEVICES

All cellular telephones and recording devices must be turned off during class time. In addition, while laptops are useful classroom tools, specifically for taking notes, using laptops and cellular telephones for personal enjoyment (i.e. Facebook, email, texting, Twitter, Snapchat, etc) during the class is unacceptable. Furthermore, usage of computers for purposes that are not related directly to class participation during class time (i.e. note taking) will result in restricting the use of computers in class. Finally, students are not permitted to record lectures using any electronic recording devices. Lectures are the intellectual property of the professor and unauthorized recording of lectures is considered an academic offence. Students who require assistance with note taking should consult the Student Development Centre.

Additional Information/Statements

Statement on Use of Non-programmable Calculators:
The only electronic devices permitted for use during tests and exams are standard (not programmable) calculators. Use of mobile phones in class, or during tests and exams is not permitted under any circumstances.

Email Correspondence

For security reasons, emails will only be answered when they come from your official UWO email account. Please keep all correspondence professional and concise.
Absence from course commitments

A. Absence for medical illness:
Western requires documentation from the medical community for students who require academic accommodation due to medical illness. Students are required to have their physician or health care provider fill out a Student Medical Certificate.

If you require this documentation from Student Health Services:
- The request for medical certificate should be made during the initial visit with the SHS physician or nurse practitioner.
- The fee for having this form completed is $20. You may pick up the completed form and make your payment in the Accounts Office (Room 19) at SHS.
- Medical certificates will only be considered for students who are seriously affected by illness and cannot reasonably be expected to meet their academic responsibilities.

Statement from the Dean’s Office, Faculty of Science
If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. For further information please see:
http://www.uwo.ca/sci/counselling/procedures/special_examination.html

A student requiring academic accommodation due to illness, 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 at:

If individual assignments or classes are missed due to medical illness or other extenuating circumstances, accommodation should be discussed with the instructor.
B. Absence for non-medical reasons:
Non-medical absences from the midterm test or final exam, or more than 2 late or missing assignments, must be documented in order to receive accommodation. Such documentation must be submitted by the student directly to the appropriate Faculty Dean’s Office and not to the instructor. It will subsequently be the Dean’s Office that will determine if accommodation is warranted.

C. Special Examinations
A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the Dean of the Faculty in which the student is registered, in consultation with the instructor and Department Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents.

A Special Examination must be written at the University or an Affiliated University College no later than 30 days after the end of the examination period involved. To accommodate unusual circumstances, a date later than this may be arranged at the time permission is first given by the Dean of the Faculty. The Dean will consult with the instructor and Department Chair and, if a later date is arranged, will communicate this to Registrarial Services. If a student fails to write a scheduled Special Examination, permission to write another Special Examination will be granted only with the permission of the Dean in exceptional circumstances and with appropriate supporting documents. In such a case, the date of this Special Examination normally will be the scheduled date for the final exam the next time the course is offered.

Support Services:

Registrarial Services: http://www.registrar.uwo.ca

Academic Counselling (Science and Basic Medical Sciences): http://www.uwo.ca/sci/counselling/index.html

USC Student Support Services: http://westernusc.ca/service

Student Development Centre: http://www.sdc.uwo.ca

Student Health Services: http://www.shs.uwo.ca/

Students who are in emotional/mental distress should refer to Mental Health@Western for a complete list of options about how to obtain help: http://www.uwo.ca/uwocom/mentalhealth/