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](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**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Email</th>
<th>Office</th>
<th>Phone</th>
<th>Office Hours</th>
</tr>
</thead>
<tbody>
<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>
</tr>
</tbody>
</table>

**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.

Tutorials: Review of lecture material and exam preparation.

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: http://www.uwo.ca/univsec/handbook/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.

Special Examinations

A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the course co-ordinator and the Medical Biophysics Graduate Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents.

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 Graduate Chair in exceptional circumstances and with appropriate supporting documents.

Students who are in emotional/mental distress should refer to Mental Health@Western, https://uwo.ca/health/mental_wellbeing/crisis.html for a complete list of options about how to obtain help.

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