Objectives:
Portable and programmable imaging systems that can be run at user’s desktop form an important bridge between theoretical knowledge gained from imaging physics courses to real-world applications involving clinical imaging systems. The primary learning outcome of this course is to provide students with practical, hands-on experience in computed tomography, magnetic resonance and ultrasound imaging modalities using desktop imaging systems. Students will gain valuable experience in the practical aspects of operation, image acquisition and data analysis during the completion of incrementally challenging and interesting in-class laboratory assignments.

Hours: Thursdays 2:30 to 5:30 pm, 3 hours/week, 0.5 course

Place: Medical Biophysics conference room (MSB 493)

Prerequisite: Introduction to Medical Imaging (MEDBIO 4475/BIOPHYS 9515/BME 9513)

Unless you have either the prerequisite for this course or written special permission from your Dean to enroll in it, you will 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 the course for failing to have the necessary prerequisites.

CAMPEP Elective:
This course is one of the electives available in the Imaging Sciences specialty for the CAMPEP accredited graduate program with a 0.5 course weight. More information can be found in the following URL:


Topics:
1. The DeskCAT desktop optical computed tomography system (http://modusmed.com/education)
2. The Terra Nova desktop magnetic resonance imaging system (http://www.magritek.com/products-terranova-overview)
3. The Sonosite portable ultrasound imaging system (http://www.sonosite.ca/products/180plus-and-sonoheart-elite)

Course Materials:
No required textbook. Recommended references will be posted to the course OWL site.

Laboratory Assignments:
The course will include up to 12 in-class laboratory assignments corresponding to computed tomography, magnetic resonance, and ultrasound imaging. On average, there will be 90 to 120 minutes of in-class access to the imaging equipment for each laboratory assignment. For each laboratory assignment, the deliverables will consist of a short written report and electronic files(s) containing outputs as specified by the laboratory assignment (as applicable). Some laboratory assignments may involve the writing of Matlab scripts to perform basic image/signal processing. The enrolled students will be divided into 2-3 groups. Each group will focus on one imaging system (modality) for 3-4 weeks and rotate to another system for the next 3-4 weeks and so on. Written report must be submitted within one week after completing the in-class assignment. One-week extension may be granted for special situations but the extension request should be put forth in advance.

Exam:
No exam. The grade evaluation will be based on the laboratory assignments (see above).

Attendance Policy:
All laboratory sessions are mandatory. Any student who, in the opinion of the course co-ordinator is absent too frequently, will receive a failing grade after due warning has been given in writing from the course co-ordinator and Graduate Chair.

Cheating and Plagiarism Policy:
Students are encouraged to work together, but each student must take total responsibility for his/her submitted work. Students must write their reports 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. University policy states that cheating, including plagiarism, is a scholastic offence. The commission of a scholastic offence is attended by academic penalties which might include expulsion from the program. If a student is caught cheating, there will be no second warning.

All written reports may be subject to submission for textual similarity review to commercial plagiarism detection software under license to the University for the detection of plagiarism. All reports will be included as source documents on the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between the University of Western Ontario and Turnitin.com (http://www.turnitin.com).

See the School of Graduate and Postdoctoral Studies Scholastic Offence Policy: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf

OWL Internet/Bulletin Board Policy:
It is the student’s responsibility to read the course website posted on Western’s on-line learning management system, OWL (https://owl.uwo.ca/portal). This includes the course bulletin board and all information and/or assignments posted about the course. If the student fails to act on information that has been posted on the course site and does so without a legitimate explanation (i.e., those covered under the illness/compassionate form), then there are NO grounds for an appeal.

Request for Assignment Extension
Students are advised to inform the course instructor as soon as possible regarding an extension for assignment submissions due to medical reasons or other compassionate reasons. Extensions will only be granted by the course co-ordinators at their discretion.
Absence Due to Medical Illness

Students must familiarize themselves with the Policy on Accommodation for Medical Illness: https://studentservices.uwo.ca/secure/index.cfm

If you are unable to meet a course requirement due to illness or other serious or compassionate circumstances, you must provide valid medical or other supporting documentation to the course coordinator immediately. It is the student's responsibility to make alternative arrangements with the coordinator to complete missing course requirements.

A student requiring academic accommodation due to illness, should use the Student Medical Certificate: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf when visiting an off-campus medical facility or request a Record's Release Form for visits to Student Health Services. The form is available at: http://www.health.uwo.ca/services/students/policies.html. The release form will allow the course coordinator to confirm with Student Health Services that a student's absence from regular attendance or inability to meet scheduled course commitments is due to medical reasons. The nature of the illness will not be divulged by Student Health Services.

Graduate Students’ Mental Health and Physical Wellness

As part of a successful graduate student experience at Western, students are encouraged to make their health and wellness a priority. Western provides several on campus health-related services to help you achieve optimum health and engage in healthy living while pursuing your graduate degree. For example, to support physical activity, all students, as part of their registration, receive membership in Western’s Campus Recreation Centre: http://www.uwo.ca/campus_life/athletics.html

All facets of extracurricular campus life in which graduate students can participate are available on this URL: http://www.uwo.ca/campus_life/arts_culture.html

Information regarding health and wellness-related services available to students may be found at http://www.health.uwo.ca. Students seeking help regarding mental health concerns are advised to speak to someone in whom they feel comfortable confiding, such as their graduate supervisor, their program director (Graduate Chair), or other relevant administrators in their unit. Campus mental health resources may be found at: http://www.health.uwo.ca/mental_health/resources.html

Accessibility to the Course and Course Materials

Please contact the course instructors if you require material in an alternate format or if you require any other arrangements to 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.

Course instructors: Dr. Aaron So, Dr. Timothy Scholl

Email: aso@robarts.ca , tscholl@robarts.ca

Office: Room 1200B, Robarts Research Institute (Dr. So’s office)

Consultation Hours: By appointment