



# **CLIN\*6950 Special Topics in Clinical Studies**

## **Cardiovascular Monitoring**

Winter 2019

Section(s): C01

Department of Clinical Studies

Credit Weight: 0.50

Version 1.00 - January 10, 2019

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## **1 Course Details**

### **1.1 Calendar Description**

### **1.2 Course Description**

This graduate course is directed at clinical residents in various disciplines who have a specific need or interest in furthering their understanding of cardiovascular monitoring. If you are not a clinical resident/DVSc student in the Department of Clinical Studies, then please contact the course instructor for further details and to determine the appropriateness of this course for your purposes. The course will be taught by selected graduate faculty with expertise in various disciplines and students will participate by preparing a lecture on an assigned topic to be delivered to the class.

### **1.3 Timetable**

Timetable is subject to change. Please see WebAdvisor for the latest information.

Currently scheduled for Thursday mornings from 8-9:30 am.

### **1.4 Final Exam**

Exam time and location is subject to change. Please see WebAdvisor for the latest information.

Tentatively scheduled for Thursday, April 18, 2019 from 8-9:30 am.

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## **2 Instructional Support**

## 2.1 Instructional Support Team

**Instructor:** Sonja Fonfara  
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**Instructor:** Alexander Valverde  
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**Course Co-ordinator:** Shane Bateman  
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**Office:** OVCP 2153

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## 3 Learning Resources

All course materials (required and supplemental) are available within the courselink course shell.

### 3.1 Required Resource(s)

**Courselink Courseshell (Website)**

<https://courselink.uoguelph.ca/d2l/home/549860>

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## 4 Learning Outcomes

### 4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Describe advanced physiologic control of vascular tone and blood pressure regulation in normal and common pathological conditions.
2. Describe detailed functioning of and be able to select appropriate instruments for measurement of blood pressure.
3. Describe advanced physiologic function of the cardiac muscle and electrophysiologic principles of action potential activation and propagation.
4. Describe the pathophysiologic principles of heart failure and be able to characterize cardiovascular dysfunction associated with common clinical diseases in multiple species.
5. Describe advanced electrophysiologic principles associated with electrocardiography and identify common arrhythmias in critically ill patients in multiple species.

6. Describe the various physiologic mechanisms associated with arrhythmogenesis and select appropriate therapeutic strategies (pharaceutical and electrophysiologic) based on these mechanisms.
  7. Describe detailed principles of cardiac output monitoring instruments and be able to select appropriate instrument for clinical situations in several species.
  8. Describe detailed principles of central venous catheter function, capacity to monitor physiologic function, and appropriately select various tools in clinical patients of several species.
  9. Describe advanced ultrasonographic principles and the commonly identified measures of cardiac function routinely measured as part of bedside echocardiography and be able to identify abnormalities that are encountered in common clinical diseases in several species.
  10. Describe the physiologic function of the endothelium and glycocalyx and the impact on fluid movement from the vascular space to the tissue.
  11. Describe the detailed physiologic principles of the microcirculation and identify several measures of oxygen delivery and utilization and be able to select and intrpret results in common clinical diseases in multiple species.
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## 5 Teaching and Learning Activities

### 5.1 Lecture

**Thu, Jan 10, 8:00 AM - 9:30 AM**

**Topic(s):** Vacular/Smooth muscle physiology

Bateman

**Thu, Jan 17, 8:00 AM - 9:30 AM**

**Topic(s):** Regulation of blood pressure and response in pathology

Bateman

**Thu, Jan 24, 8:00 AM - 9:30 AM**

**Topic(s):** Arterial blood pressure monitoring

Bateman OR Student TBA

**Thu, Jan 31, 8:00 AM - 9:30 AM**

**Topic(s):** Mechanical and electrical activity of the heart

Bateman OR Student TBA

**Thu, Feb 7, 8:00 AM - 9:30 AM**

**Topic(s):** Pathophysiology of heart failure/heart failure therapy

Fonfara

**Thu, Feb 14, 8:00 AM - 9:30 AM**

**Topic(s):** Cardiac output monitoring

Valverde

**Thu, Feb 21**

**Topic(s):** Reading week- NO lecture

**Thu, Feb 28, 8:00 AM - 9:30 AM**

**Topic(s):** Electrocardiography, arrhythmogenesis

Fonfara

**Thu, Mar 7, 8:00 AM - 9:30 AM**

**Topic(s):** Antiarrhythmic therapy  
(pharmacologic/electrophysiologic)

Fonfara

**Thu, Mar 14, 8:00 AM - 9:30 AM**

**Topic(s):** Central venous catheter monitoring

Student TBA

**Thu, Mar 21, 8:00 AM - 9:30 AM**

**Topic(s):** The endothelium and glycocalyx

Student TBA

**Thu, Mar 28, 8:00 AM - 9:30 AM**

**Topic(s):** The microcirculation: monitoring tissue oxygen delivery  
and utilization

Student TBA

**Thu, Apr 4, 8:00 AM - 9:30 AM**

**Topic(s):** Bedside echocardiography

Student TBA

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## 6 Assessments

### 6.1 Assessment Details

#### **Lecture Presentation (30%)**

Students will choose/be assigned one lecture to present during the course. You are responsible for curating the reference reading material for the class and preparing an 80 minute lecture and accompanying lecture materials. You'll also submit 3 long answer or multiple choice questions for each lecture for the final examination. Successful completion of all components of this assignment are required. The grade for this component will be comprised of the average scores of peer-assessments that will be submitted to the course instructor by the learners in the class who attend the lecture. Points will be deducted for failure to complete any aspect of this assignment.

#### **Final Examination (70%)**

**Date:** Thu, Apr 18, 8:00 AM - 9:30 AM

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## 7 University Statements

### 7.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

### 7.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

### 7.3 Drop Date

Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second

semester. The regulations and procedures for course registration are available in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

## 7.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

## 7.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

More information can be found on the SAS website

<https://www.uoguelph.ca/sas>

## 7.6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community-faculty, staff, and students-to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be

construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

## **7.7 Recording of Materials**

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

## **7.8 Resources**

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>

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