Western Science

Department of Mathematics

Mathematics 9600 Course Outline

1. Course Information

Course Information: Mathematics 9600 Fall 2021 Introduction to Foliations. The course meets Wednesdays 9:30-11:30 AM, and Thursdays 11:30 AM -12:30 PM in MC 107.

Prerequisites: Basic knowledge of real, complex, and functional analysis; topological spaces; linear algebra. Some knowledge of differential geometry will be also helpful.

2. Instructor Information

Prof. Rasul Shafikov, shafikov@uwo.ca, office: MC 112.

Students must use their Western (@uwo.ca) email addresses when contacting their instructors.

Office hours: TBA

3. Course Syllabus, Schedule, Delivery Mode

The course is dedicated to the study of foliations on manifolds. Foliations can be thought of as a decomposition of a smooth manifold into a disjoint union of smooth submanifold of the same dimension (called leaves). The theory of foliations, which was developed in the second half of the 20th century, connects many different areas of mathematics: differential geometry, Lie groups, topology, differential equation, dynamical systems, etc. After covering some required background material, we will spend a significant amount of time studying important examples of foliations, topology of the leaves, holonomy and other properties of foliations. We will then discuss Haefliger's theorem and Novikov's theorem – fundamental results in classical foliation theory.

Key Sessional Dates:

Classes begin: September 8, 2021.
Homework assignment: October 2021.
Reading Week: November 1–7, 2021.
Classes end: December 8, 2021.

Contingency plan for an in-person class pivoting to 100% online learning: in the event of a COVID-19 resurgence during the course all remaining course content may be delivered entirely online, synchronously (i.e., at the times indicated in the timetable) The grading scheme will not change.

4. Course Materials

There are many books on foliations, but primarily we will be using the textbook by Cesar Camacho and Alcides Lins Neto, *Geometric Theory of Foliations,* Birkhauser, 1985. This book will be on reserve in the library.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Homework: 31%
In-class presentation: 69%

Accommodated Evaluations: Assignments submitted after the deadline will receive an automatic 10% deduction. Every assignment written in TeX or LaTeX will receive 1 extra point.

In-class presentations will take place at the end of the course. The topics should be selected in consultation with the instructor.

6. Accommodation and Accessibility

Accommodation Policies
Students with disabilities work with Accessible Education (formerly SSD), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf

7. Academic Policies

The website for Registrarial Services is http://www.registrar.uwo.ca.

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

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 Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

9. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: https://www.uwo.ca/sci/counselling/.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at (519) 661-2147 if you have any questions regarding accommodations.

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

Additional student-run support services are offered by the USC, http://westernusc.ca/services.