Course Outline
MATH 465: Topics in Topology: Minimal Dynamics on the Cantor Set

Instructor(s)

Lecturer: Ian F. Putnam

Email: `ifputnam@uvic.ca`

Phone: 250-721-7449 (Use only in case of emergency)

Office: David Turpin Building A444

General Course Information

Number of Units: 1.5

Pre-requisites: Math 312 and Math 365, or permission of the instructor

Office Hours and Assistance

Tuesday 2:30 to 3:20 PM

Friday 9:30 AM to 10:20 AM

or by appointment

Other Help: The Mathematics & Statistics Assistance Centre is a large space where students can go to work, on their own or in groups, and to discuss math & stats problems. The Centre is staffed with talented Teaching Assistants who are happy to discuss primarily first and second year course material with you. Please see `http://www.math.uvic.ca/~msassist/index.html` for more information.

Math Club: Students in Undergraduate Mathematics and Statistics (SUMS) was founded in 2014 as the reincarnation of a previous undergraduate course union that had been inactive for a few years. Please see `http://www.uvic.ca/science/math-statistics/current-students/undergraduate/sums/index.php` for more information.

Learning Objectives

- To learn the basic concepts of dynamical systems.

- To learn about minimal dynamical systems on the Cantor set and their algebraic invariants

- To learn the classification of such systems up to orbit equivalence

- To provide proofs for the basic results.

- To investigate examples related to the results.

Course Material and Online Resources

Textbook: The text for the course will be *Cantor Minimal Systems* by the instructor. Published by the American Mathematical Society, more information can be found at `https://bookstore.ams.org/ulect-70/`

Course webpage: All course materials will be available through CourseSpaces.

Calculator: A calculator is neither permitted nor needed in this course.

Class Meetings

The class will be held Tuesday, Wednesday and Friday from 12:30 to 1:20 PM in CLE C 113. The first lecture will be Wednesday, September 5, 2018.

Specific Topics

1. An example

2. Basics of Cantor sets and orbit equivalence

3. Bratteli diagrams

4. The Bratteli-Vershik model

5. Étale equivalence relations

6. The D-invariant

7. The Effor-Handelman-Shen Theorem

8. The Bratteli-Elliott-Krieger Theorem

9. Strong orbit equivalence

10. The D_m-invariant

11. The absorption theorem

12. The classification of AF-equivalence relations

13. The classification of $\mathbb{Z}$-actions

Evaluation and Grading

There will be six assignments with most problems taken from the text. These will be due roughly every two weeks. All assignments will count equally toward the course grade. There will be no midterm or final examinations.

Percentage scores will be converted to letter grades according to the university-wide standard table

`http://web.uvic.ca/calendar2017-05/undergrad/info/regulations/grading.html#.`

Accessibility Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the Centre for Accessible Learning (CAL) as soon as possible. The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations `http://uvic.ca/cal`. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Late assignments Late assignments (i.e., deferred examinations) are accepted only in accordance with the university policy as outlined in the Calendar. If you are unable to submit an assignment on the assigned date due to illness, accident or family affliction, please contact me as soon as possible. Also, please refer to the following webpages for detailed instructions how to proceed:
`http://web.uvic.ca/calendar/undergrad/info/regulations/concessions.html`

Course Experience Survey (CES)

I value your feedback on this course. Towards the end of term, as in all other courses at UVic, you will have the opportunity to complete an anonymous survey regarding your learning experience (CES). The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. When it is time for you to complete the survey you will receive an email inviting you to do so. You will need to use your UVic netlink ID to access the survey, which can be done on your laptop, tablet, or mobile device. I will remind you and provide you with more detailed information nearer the time but please be thinking about this important activity during the course.

Policies and Ethics

Attendance The university Calendar states 'Students are expected to attend all classes in which they are enrolled.'
`http://web.uvic.ca/calendar/undergrad/info/regulations/attendance.html`

Our courses are conducted on that basis. If you miss an announcement (information concerning midterms, corrections to assignment, etc.) because you did not attend class, you must accept the consequences of not having learned of the change.

Guidelines on Religious Observances Where classes or examinations are scheduled on the holy days of a religion, students may notify their instructors, at least two weeks in advance, of their intention to observe the holy day(s) by absenting themselves from classes or examinations. Instructors will provide reasonable opportunities for such students to make up work or missed examinations.

Missing work If an assignment cannot be completed due to illness, accident or family affliction, it may be possible to have the remaining assignments count equally to the final grade.

Academic Integrity Academic integrity is intellectual honesty and responsibility for academic work that you submit individual or group work. It involves commitment to the values of honesty, trust, and responsibility. It is expected that students will respect these ethical values in all activities related to learning, teaching, research, and service. Therefore, plagiarism and other acts against academic integrity are serious academic offenses.

The responsibility of the institution

Instructors and academic units have the responsibility to ensure that standards of academic honesty are met. By doing so, the institution recognizes students for their hard work and assures them that other students do not have an unfair advantage through cheating on essays, exams, and projects.

The responsibility of the student

Plagiarism sometimes occurs due to a misunderstanding regarding the rules of academic integrity, but it is the responsibility of the student to know them. If you are unsure about the standards for citations or for referencing your sources, ask your instructor. Depending on the severity of the case, penalties include a warning, a failing grade, a record on the students transcript, or a suspension.

It is your responsibility to understand the University's policy on academic integrity:
`http://web.uvic.ca/calendar/undergrad/info/regulations/academic-integrity.html#`

Important Dates

Classes begin	Wednesday, September 5
Drop (100 % Fee Reduction)	Tuesday, September 18
Last Day to Add Courses	Friday, September 21
Thanksgiving (no classes)	October 8
Drop (50 % Fee Reduction)	Tuesday, October 9
Academic Drop Date	Wednesday, October 31
Remembrance Day	Sunday, November 11
Reading Break (no classes)	Monday, November 12 to Wednesday, November 14
Last day of classes	Wednesday, December 6