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Resume

Publications

Foundations of
Mathematics Fall
2023

Special Topics in
Logic Fall 2023

UF Logic and Set
Theory Group

Special Topics in Logic Fall 2023

Course: Special topics in logic, MAT6932 section 02HE course number 14665

Meeting time and place: LIT 0217, MWF 5th period

Instructor: Jindrich Zapletal

Office: 456 Little Hall, office hours MWF 3rd period

Contact: zapletal@math.ufl.edu, 352-294-2343

Course Description: Games in mathematics. We will concentrate on two player infinite games, existence of winning strategies, and applications to analysis, topology, and logic.

Prerequisite: The students should have passed his first year and second year exams in pure mathematics before signing up for the course. Or, permission of the instructor.

Course Objectives: The student will be able to design infinite games associated with various concepts and exploit the existence of winning strategies for them.

Textbook: TBD, different for each of the three topics of the course

Grading: There will be three equally weighted take-home assignments, which will form the only basis for the final grade.

Provisional timeline of the course: There will be three separate topics:

1. infinite integer games. These are games where moves are natural numbers or things that can be coded as such. The overriding concern is that of existence of winning strategies (determinacy). We will consider the Gale-Stewart theorem (open determinacy), Borel determinacy, analytic determinacy, the axiom of determinacy. As applications, we will consider among other things Wadge degrees of subsets of the Baire space and Martin measure on Turing degrees.
2. Other, mostly undetermined, games. Here we will look at various game-theoretic concepts in various branches of mathematics, not always determined. Ehrenfeucht-Fraïssé games in model theory, games on ultrafilters on natural

- numbers, open cover games in topology, other well-established examples
3. We will look at a recent work of Gowers, introducing new types of infinite games on Banach spaces, with applications to Ramsey theory.

Diversity, equity, and inclusion statement. It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, religion, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In particular, I will gladly honor your request to address you by an alternate/ preferred name or gender pronoun. Please advise me of this preference early in the semester so I may make appropriate changes to our records.

Honor code. UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code specifies a number of behaviors that are in violation of this code and the possible sanctions. [Click here to read the Honor Code. Links to an external site.](#) Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor in this class.

Class attendance. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. [Click here to read the university attendance policies. Links to an external site.](#)

Accommodations for students with disabilities. Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center. [Click here to get started with the Disability Resource Center. Links to an external site.](#) It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Online evaluations. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. [Click here for guidance on how to give feedback in a professional and respectful manner. Links to an external site.](#) Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via ufl.bluera.com/ufl/. [Links to an external site.](#) Summaries of course evaluation results are available to students here. [Links to an external site.](#)

Complaints. The official UF policy for filing a complaint about the course may be found [here](#).

Health and wellness. *U Matter, We Care:* If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit [U Matter, We Care website](#) [Links to an external site.](#) to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the [Counseling and Wellness Center website](#) [Links to an external site.](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the [Student Health Care Center website](#) [Links to an external site.](#)

University Police Department: Visit [UF Police Department website](#) [Links to an external site.](#) or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road,

Gainesville, FL 32608; Visit the [UF Health Emergency Room and Trauma Center website](#) [Links to an external site.](#)

Academic resources. *E-learning technical support:* Contact the [UF Computing Help Desk](#) [Links to an external site.](#) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center [Links to an external site.](#): Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

Library Support [Links to an external site.](#): Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center [Links to an external site.](#): Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: Visit the [Student Honor Code and Student Conduct Code webpage](#) for more information [Links to an external site.](#)

On-Line Students Complaints: View the [Distance Learning Student Complaint Process](#) [Links to an external site.](#)

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