Foundations of Mathematics
MHF 4203/5207 Section: 22263/22264
Class Periods: MWF, 6, 12:50—1:40
Location: Little 219
Academic Term: Fall 2022

Instructor:
Douglas Cenzer
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Office Hours: M7, F3 or by appointment, Little Hall 310 and online

Course Description
MHF 4203: Models and proofs. Foundations of real and natural numbers, algorithms, Turing machines, undecidability and independence. Examples and applications in algebra, analysis, geometry and topology. Credit will be given for, at most, MHF 4203 or MHF 5207.
MHF 5207: Languages, models, and theories; Godel's completeness and incompleteness theorems; formal number theory and axiomatic set theory; applications to other areas of mathematics.

Course Pre-Requisites / Co-Requisites
MAS 4105 with a minimum grade of C (for MHF 4102).

Course Objectives
Students who successfully complete the course will be able to understand and apply basic concepts of logic and computability. They will be able to read, write and present theorems and proofs in higher mathematics.

Required Textbooks and Software
- Foundations of Mathematics, Volume II of
- Set Theory and the Foundations of Mathematics
- World Scientific Press
- D. Cenzer, J. Larson, C. Porter, J. Zapletal

Course Schedule (Tentative)

Two Weeks: Propositional Logic, Chapter 2
Two Weeks: Predicate Logic, Chapter 3
Two Weeks Models of Predicate Logic, Chapter 4
Two Weeks: Boolean Algebras, Chapter 5
Three Weeks: Computability, Chapter 6
Two Weeks: Decidable and Undecidable Theories, Chapter 7
One Week: Nonstandard Numbers, Chapter 9
One Week: Foundations of Geometry, Chapter 10

Attendance Policy, Class Expectations, and Make-Up Policy
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies which can be found at
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx
Excused absences must be consistent with university policies in the Graduate Catalog
(http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance) and require appropriate documentation.

Evaluation of Grades
Grades will be based on written homework problems.
There will be about 6 homework assignments, worth 20 points each, with the best 5 scores counted.

Grading Policy

Points	Grade	Grade Points
90 - 100	A	4.00
85 - 89	A-	3.67
80 - 84	B+	3.33
75 – 79	B	3.00
71 - 74	B-	2.67
67 - 70.	C+	2.33
60 – 66	C	2.00

More information on UF grading policy may be found at:
http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Students Requiring Accomodations
Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting https://disability.ufl.edu/students/get-started/. 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.

Course Evaluation Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at gatorevals.aa.ufl.edu/students/. 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/. Summaries of course evaluation results are available to students at gatorevals.aa.ufl.edu/public-results/ .

University Honesty Policy
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 (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. 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 or TAs in this class.

Software Use
All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy
There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html

Health and Wellness

In response to COVID-19, the following recommendations are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

- If you are not vaccinated, get vaccinated. Vaccines are readily available and have been demonstrated to be safe and effective against the COVID-19 virus. Visit one.uf for screening / testing and vaccination opportunities.
- If you are sick, stay home. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 to be evaluated.

U Matter, We Care:
If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Academic Resources

E-learning technical suppor*t*, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. https://www.crc.ufl.edu/.

Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.

Student Complaints Campus*:* https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.