Advanced Topics in Topology: Characteristic Classes

INSTRUCTOR

Michael Zarichnyi (zarichnyi@ufl.edu https://people.clas.ufl.edu/zarichnyi/)

MEETING TIME AND LOCATION

M W F Period 8, LIT 0205

OFFICE HOURS

LIT 0418 MW 6 or by appointment

TEXTBOOK

Characteristic Classes by John W. Milnor and James D. Stashef,
1974.

DESCRIPTION AND GOALS

Smooth Manifolds
Vector Bundles
Stiefel-Whitney Classes
Grassmann Manifolds and Universal Bundles Oriented Bundles and the Euler Class
The Thom Isomorphism Theorem
Computations in a Smooth Manifold Obstructions
Complex Vector Bundles and Complex Manifolds Chern Classes
Pontrjagin Classes
Chern Numbers and Pontrjagin Numbers
The Oriented Cobordism Ring Ω_*
Thom Spaces and Transversality
Multiplicative Sequences and the Signature Theorem Combinatorial Pontrjagin Classes

GRADING

30%HWQuizzes+30%MT+40%Final; A if >85, B+ if > 80, B if > 70, C+ if > 65, C if > 50.

Three quizzes and one in class Midterm based on the Homework; the home-taken Final; no make-ups.

Home work is not graded. Quizzes consist of homework problems.

Extra credit: up to 10 pts for a presentation in class, up to 5 pts for solving a * rated homework problem.

ATTENDANCE AND LATE POLICY

Attendance is strongly recommended. We will adhere to the university atten- dance policies that can be found here: https://catalog.ufl.edu/UGRD/academic- regulations/attendance-policies/.

DIVERSITY STATEMENT

The University of Florida and the Department of Mathematics are committed to diversity and inclusion of all students. We recognize the diversity of backgrounds and learning needs of our students and strive to create a more inclusive and welcoming environment for everyone. We strongly believe that an inclusive learning environment promotes higher academic achievements.

DISABILITIES STATEMENT

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/. 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 re- spectful 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 https://gatorevals.aa.ufl.edu/students/. Students will be notified when the eval- uation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are avail- able to students at https://gatorevals.aa.ufl.edu/public-results/.

ACADEMIC HONESTY

University of Florida 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 in- tegrity by abiding by the Honor Code." On all work submitted for credit by stu- dents at the University of Florida, the following pledge is either required or im- plied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://sccr.dso.ufl.edu/process/student- honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. If you have any questions or concerns, please consult with the instructor.

CAMPUS RESOURCES

Health and wellness:
– UMatter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-3921575, or visit the U Matter, We Care website at https://umatter.ufl.edu/ 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 at https://counseling.ufl.edu/ 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 at https://shcc.ufl.edu/.
– University Police Department: Visit the UF Police Department web- site at https://police.ufl.edu/ or call 352-392-1111 (or 9-1-1 for emergen- cies).
– UFHealth Shands Emergency Room / Trauma Center: For immedi- ate 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 at https://ufhealth.org/emergency- room-trauma-center.
– GatorWell Health Promotion Services: For prevention services fo- cused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website at https://gatorwell.sfsa.ufl. edu/ or call 352-273-4450.

ACADEMIC RESOURCES

– Career Resource Center: Reitz Union, 352-392-1601, https://career.ufl.edu/. Career assistance and counseling.
– Library Support: ask@ufl.libanswers.com. Various ways to receive assistance with respect to using the libraries or finding resources.
– Teaching Center: Broward Hall, 352-392-2010, 352-392-6420, or http://teachingcenter.ufl.edu/. General study skills and tutoring.
– Writing Studio: 302 Tigert Hall, 352-846-1138, http://writing.ufl.edu/writing-studio/. Help brainstorming, formatting, and writing papers.

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