

# MAT 566 DIFFERENTIAL TOPOLOGY SPRING 2023

INSTRUCTOR: Mark Andrea de Cataldo

TIME AND PLACE: Tu&Th 1:15-2:#5pm, PHYSICS P-117.

TEXTBOOK: Characteristic Classes, Milnor and Stasheff

SYLLABUS: We cover a selection of the topics in the book and occasionally complement it with other sources.

There is no final exam. There is no homework. Students are required to give an in-class presentation of a topic below.

Students will pair up and present one topic jointly in 80 minutes total (one class meeting).

Focus must be on clarity and main ideas/points, not on mathematical detail (do not get entangled in proofs).

TOPICS (all from Bott and Tu book Differential forms in algebraic topology)

- 1) Orientation, integration, Stokes'
- 2) Poincare' Lemmas ( $H$  and  $H_c$ ), degree of proper map
- 3) M-V Finite dim, Kunnet, Leray-Hirsch, PD of submanifold
- 4) Thom iso (includes compact vertical cohomology and fiber integration)
- 5) Sphere bundles
- 6) Splitting Principle
- 7) Pontrjagin classes

OFFICE HOURS: Tu&Th 11:00am-12:30pm (MAT 5-108).

## Student Accessibility Support Center Statement

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Student Accessibility Support Center, ECC (Educational Communications Center) Building, Room 128, (631)632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential. [https://](https://www.stonybrook.edu/commcms/studentaffairs/sasc/facstaff/syllabus.php)

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*[In addition, this statement on emergency evacuation is often included, but not required:*

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Student Accessibility Support Center. For procedures and information go to the following website: <https://ehs.stonybrook.edu/programs/fire-safety/emergency-evacuation/evacuation-guide-people-physical-disabilities>

## Academic Integrity Statement

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare,

Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at: [http://www.stonybrook.edu/commcms/academic\\_integrity/index.html](http://www.stonybrook.edu/commcms/academic_integrity/index.html)

### **Critical Incident Management Statement**

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.