MAT 132: Calculus II

Spring 2023
Department of Mathematics
Stony Brook University
version 3/29/2023 (changes on WEEK 11 and 12)

Important Note: Every effort will be made to avoid changing the course schedule. Any changes will be clearly noted in course announcements and/or email.

Course Description: A continuation of MAT 131, covering symbolic and numeric methods of integration; area under a curve; volume; applications such as work and probability; sequences; series; Taylor series; differential equations; and modelling. May not be taken for credit in addition to MAT 127, MAT 142, MAT 171, or AMS 161. This course has been designated as a High Demand/Controlled Access (HD/CA) course. Students registering for HD/CA courses for the first time will have priority to do so.

Textbook (required): James Stewart, Single Variable Calculus: Concepts & Contexts, **5th edition**.

If you have a different edition, it may be ok to study on, but the problems are assigned from the 5th edition.

There is no online component for this course, in particular, all homework assignments are to be handed-in as hand-written or typed.

Prerequisites: C or higher in AMS 151 or MAT 131 or 141, or level 7 on the mathematics placement examination.

Instructors and TAs: Link to MAT Courses Schedule, scroll down to MAT 132. Click on instructor or TA name to reach their webpage with contact info and office hours.

Technology Requirements: None, beyond the ability to receive email and access BRIGHTSPACE. The university provides technology support. For laptop loans: `https://www.stonybrook.edu/commcms/studentaffairs/studentsupport/`; for IT support: `https://it.stonybrook.edu/services/itsm`. No laptops (unless allowed by SASC: show the SASC letter to the instructor and TA). During exams: no technology of any kind, no notes, no textbooks (possible exceptions: if exam is taken at SASC; the MAT 132 staff does not deal with these exceptions directly).

Course Schedule: The course schedule for MAT 132 is as follows and is subject to change.

- WEEK 1 of JAN 23: 5.1, 5.2, 5.3. 5.4, 5.5.
  Review of integrals, Fundamental theorem of calculus, Substitution.
  HMK1 assigned. Due on WEEK 2.
- WEEK 2 of JAN 30: 5.6, 5.7.
  Integration techniques, Integration by parts, Partial fractions.
  HMK1 due.
  HMK2 assigned. Due on WEEK 3.
- WEEK 3 of FEB 6: 5.10, 6.1, 6.4.
  Improper integrals, Area between curves, Arc length.
  HMK2 due.
  HMK3 assigned. Due on WEEK 4.
- WEEK 4 of FEB 13: 6.2, 6.3.
  Volumes.
  HMK3 due.
  HMK4 assigned. Due on WEEK 5.
- WEEK 5 of FEB 20: Review of Volumes, 8.1.
  Applications of integration, Sequences.
  HMK4 due.
  HMK5 assigned. Due on WEEK 7 (seven).
- **MIDTERM I: Monday, February 27, 7:50pm-9:15pm.**
  LOCATION TBA.
  Exam covers: Integration (Everything up to Week 4 INCLUDED).
  Exam is during WEEK 6. No HMK Due this week.
- WEEK 6 of FEB 27: 8.2, 8.3.
  Series, The integral and comparison tests.
  NO HMK IS DUE
  HMK6 assigned. Due on WEEK 7 (seven).
- WEEK 7 of MAR 6: 8.4.
  Series, Other tests (AST; ABSOLUTE; ROOT; ...)
  HMK5 and HMK6 are due.
  HMK7 assigned. Due on WEEK 8 (eight).
- **WEEK of MAR 13: SPRING BREAK (no class, obviously).**

- WEEK 8 of MAR 20: 8.5, 8.6.
  Power Series.
  HMK7 due.
  HMK8 assigned. Due on WEEK 9.
- WEEK 9 of MAR 27: 8.7.
  Taylor and Maclaurin series.
  HMK8 due.
  HMK9 assigned. Due on WEEK 10.
- WEEK 10 of APR 3: 8.8, 7.1.
  Applications of Taylor polynomials, Introduction to differential equations.
  HMK9 due.
  HMK10 assigned. Due on WEEK 11.
- WEEK 11 of APR 10: 7.3.
  Separable differential equations, Review up to 8.8.
  HMK10 is due.
  HMK11 assigned. Due on WEEK 13.
- WEEK 12 of APR 17: 7.4.
  Review up to 8.8. Exponential growth and decay.
  NO HMK IS DUE.
  HMK12 assigned. Due on WEEK 13.
- **MIDTERM II: Wednsday, April 19, 7:50pm-9:15pm.**
  LOCATION TBA.
  Exam covers: Cumulative with focus on Week 5 to 10 (series and sequences).
  Exam is during WEEK 12. No HMK Due this week.
- WEEK 13 of APR 24: 7.5, Appendix I.
  The logistic equation, Complex numbers.
  HMK11 and HMK12 are due.
  HMK13 assigned. Due on WEEK 14.
- WEEK 14 of MAY 1: Review and/or catch-up.
  HMK13 is due.
  HMK14 assigned but not collected (this is the last week of class).
- **FINAL EXAM: Wed. 5/10, 8-10:45am.**
  LOCATION TBA.
  Exams covers: cumulative (All material covered during the semester).

Grading Policy:

Homework: 10% (= 100 pts.);

Midterm I: 25% (= 250 pts.);

Midterm II: 25% (= 250 pts.);

Final: 40% (= 400 pts.).

Grades: Posted on BRIGHTSPACE by the TA.
Your row will display the columns (in that order): I, II, F, H, H1, H2,..., T.
H1 is for HMK1 etc.
T is for total, the sum T=I+II+F+H.
H is the sum of the ten (10) best homework grades.
At the end of the course, the final grade will be based on the total T ($\leq 1,000$pts).
The final grade will appear in SOLAR, but It WILL NOT appear on BRIGHTSPACE.

Etiquette: Be punctual. Be courteous to all. No food. No smartphones.

Written Homework: Weekly problem sets will be assigned.
We may suggest additional problems for you to practice, but they are not to be handed-in and they will not be graded.

- You are encouraged to discuss the homework problems with others, but your write-up must be your own work.
- Homework pages must be stapled together with a metallic staple (no clips, no folds). The TA may refuse to accept/grade unstapled homework.
- Assignments will be posted, including the due date, on BRIGHTSPACE at the beginning of each week. This due date may differ from the tentative one on the course schedule. The homework will be usually due on the following week, at the beginning of the second recitation.
- Only four (4) of each weekly assigned homework set of problems will be graded.

  Only the ten (10) best homework grades are counted towards the final grade.

  Each homework is worth 10pts.

  At the end of the semester, we add the ten (10) best homework scores. So the maximum total score H for homework is 100pts, 10% of the total maximum T=1,000pts.
- **Late homework will never be accepted.**

Problems must be legible and must use complete sentences, correct grammar, correct spelling, etc. A complete solution will include the following:

- The statement of the problem
- An organized presentation of ideas leading to a solution
- An answer that is circled or boxed
- If a problem has multiple parts it should be solved as though each part were a separate problem, following the order in which the parts are listed.
- If there is no work shown, there is no credit. In other words, an answer with no justification is not admissible (even if it is the correct answer!)

Exams: There will be **two** Midterms as well as **one** Final, each respectively accounting for 25%, 25%, and 40% of the total grade. All exams will be **in-person**. By enrolling in this course, you are attesting to the fact that you will be available for the exams at the following times:

- **Midterm I**: Mon 2/27 7:50 - 9:15 PM.
- **Midterm II**: Wed 4/19 7:50 - 9:15 PM.
- **Final**: Wed 5/10, 8-10:45 AM.

No make-up exams will be given. If you miss a midterm because of convincingly documented circumstances beyond your control, then, at the discretion of the course instructor, the relevant score may be dropped in computing your course grade. A grade of Incomplete will be granted only if documented circumstances beyond your control prevent you from taking the final exam.

Basis of grade determination: (Important: this is indicative only; letter grades are generated only after the final has been graded; the letter grades depend on many factors, such as all students' overall performance in the course)

A- and A 85-100%; B-, B, and B+ 65-85%; C and C+ 50-65%; D 40-50%; F 0-40% (percentages refer to the maximum possible total numerical score of 1000 points.).

Student Absences Statement

Students are expected to attend every class, report for examinations and submit homework as scheduled. If a student is unable to report for any exam due to extenuating circumstances, the student must contact the instructor as soon as possible. If a student is unable to complete homework as scheduled due to extenuating circumstances, the student must contact the TA as soon as possible. Students may be requested to provide documentation to support their absence and/or may be referred to the Student Support Team for assistance. Students will be provided reasonable accommodations for missed exams and homeworks due to significant illness, tragedy or other personal emergencies. Please note, all students must follow Stony Brook, local, state and Centers for Disease Control and Prevention (CDC) guidelines to reduce the risk of transmission of COVID. For questions or more information follow the link `https://www.stonybrook.edu/commcms/strongertogether/`.

Student Accessibility Support Center Statement (SASC)

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, Stony Brook Union Suite 107, (631) 632-6748, or at `sasc@stonybrook.edu`. SASC website: `https://www.stonybrook.edu/sasc/`. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and the Student Accessibility Support Center. For procedures and information go to the following website: `https://ehs.stonybrook.edu/programs/fire-safety/emergency-evacuation/evacuation-guide-disabilities` and search Fire Safety and Evacuation and Disabilities.

Academic Integrity

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`.

Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Student Conduct and 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.