

**SYRACUSE UNIVERSITY**  
**MAT 731, Rings and Modules**

**Fall 2017 – SYLLABUS**

**Instructor:** Declan Quinn, 306A Carnegie Phone: 443-1484

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**Office Hours:** Monday 12:45 – 1:40 pm  
Wednesday 3:30 – 4:30 pm  
Friday 11:40 am – 12:35pm

**Course Description:** The topics include modules, submodules, factor modules, chain conditions, Hilbert basis theorem, division rings, Schur's lemma, Jacobson density theorem, semisimple modules, socles, Jacobson radical, semiprimitive rings, Artin-Wedderburn theorem, composition length, Jordan-Holder theorem, projective, injective and divisible modules, projective and injective resolutions, integral extensions, completions, localization.

**Text:** *Advanced Modern Algebra* 2<sup>nd</sup> Edition, by Joseph J. Rotman, AMS 2010.

**Mathematics Prerequisites:** MAT 631, 632.

**Homework:** Problems will be assigned in class and some of these will be collected and graded. You are encouraged to work with your classmates on problems, but each student must write up an independent solution. The criteria for grading solutions will be explained in class.

**Exams:** There will be one two-hour exam (on a date to be announced) around the middle of the semester. In addition there will be a two-hour final exam at the end of the semester.

**Grades:** Homework will count for 55% of your grade, the midterm will count 20% and the final will count for the remaining 25%.

**Students with Disabilities:** If you believe that you need academic adjustments (accommodations) for a disability, please contact the Office of Disability Services (ODS), visit the ODS website– <http://disabilityservices.syr.edu>, located in Room 309 of 804 University Avenue, or call (315) 443-4498 or TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting academic adjustments. ODS is responsible for coordinating disability-related academic adjustments and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since academic adjustments may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

**Academic Integrity:** Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about

course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice.

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level. For more information and the complete policy, see <http://class.syr.edu/academic-integrity/>

**Religious observances policy:** SU religious observances policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to are religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -> Enrollment -> My Religious Observances) from the first day of class until the end of the second week of class.