# MATH 709: TOPICS IN COMPUTATIONAL MATHEMATICS: MODULAR FORMS

**Course number:** MAT 709-023

**Course title:** Topics in Computational Mathematics

**Credits:** 3

**Meetings:** MWF 2:00–2:50 PM

**Prerequisites:** Permission of instructor

**Instructor information:**

Instructor: Dr. Dan Yasaki d_yasaki@uncg.edu
Homepage: http://www.uncg.edu/math/faculty/d_yasaki/teaching.html
Office Hours (146 Petty): By appointment.

**For whom planned:** Graduate students interested in number theory.

**Catalog description:** Advanced study in special topics in computational mathematics.

**Student learning outcomes:** Upon successful completion of this course, students shall be able to

**SLO 1:** Define some fundamental objects in modular forms.
**SLO 2:** Summarize some of the main results.
**SLO 3:** Compute modular forms efficiently.
**SLO 4:** Construct proofs of some fundamental results.

**Teaching methods and assignments for achieving learning outcomes:**

**Reading:** Weekly reading assignments. (SLO 1, SLO2)
**Lectures:** This is the primary method of content delivery. (SLO 1, SLO 2)
**Homework:** Written assignments to address computational as well as theoretical aspects of number theory. (SLO 1–4)
**Tests:** Tests and final exam serve as the primary gauge of evaluation. (SLO 1–4)

**Evaluation and grading:** Semester averages are computed according to the syllabus, and letter grades are assigned to the following point scale. Grades are not curved or rounded.

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|---|---|---|---|
| A+ : 98.5–100 | B+ : 88.5–89.4 | C+ : 78.5–79.4 | D+ : 68.5–69.4 |
| A : 91.5–98.4 | B : 81.5–88.4 | C : 71.5–78.4 | D : 59.0–68.4 |
| A− : 89.5–91.4 | B− : 79.5–81.4 | C− : 69.5–71.4 | F : 0–58.9 |

**Homework:** Written homework assignments (30%)
**Tests:** Two tests (20% each)
**Final Exam:** final exam (30%)

**Required text:** A first course in modular forms, by Diamond and Shurman.
If you are on the network at the university, (or chase it down through the library connection) you can access the PDF or order a cheap MyPrint version.

https://link.springer.com/book/10.1007/978-0-387-27226-9

**Academic Integrity Policy:** Each student is required to sign the Academic Integrity Policy on all major work submitted for the course.

*I have abided by the UNCG Academic Integrity Policy on this assignment.*
Signature _____ Date _____

More information can be found at

https://osrr.uncg.edu/academic-integrity/ .

**Attendance Policy:** Attendance is mandatory and measured with a daily sign-in sheet.

**Additional information:**

(1) UNCG seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Office of Accessibility Resources and Services (OARS) in 215 Elliott University Center, 334-5440, http://oars.uncg.edu .
(2) Assignments Policy: Assignments are due in class on the due date, and late after 5 pm that day. Late assignments will be accepted at the following lecture period for half credit.
(3) Absence Policy: You are responsible for all missed material. Any missed assignment, test, or final exam will result in a score of 0. Make-up tests and final exam will be given only if you receive prior approval for a valid excuse by contacting me at least one week in advance.
(4) Copyright Policy: Selling or purchasing notes from classes for commercial gain is a violation of the UNCG Copyright Policy.

    http://policy.uncg.edu/copyright/

    Any student who sells notes taken in class for commercial gain, or who purchases notes taken by another student for commercial gain, is in violation of this policy and, by extension, is committing a violation of the Student Code of Conduct.

    http://sa.uncg.edu/handbook/student-code-of-conduct/

(5) Email Policy: All email correspondence should be made using your UNCG email account. You must check your email regularly for updates and announcements.
(6) Calculators are not allowed on tests, quizzes, or the final exam. There will be homework exercises that require the use of MATLAB or similar software.