

Course Information

Course Number:	MATH 689
Course Title:	Automorphic forms, representations, and L-functions. (Special topics)
Section:	TBD
Time:	TBD
Location:	TBD
Credit Hours:	3

Instructor Details

Instructor:	Matthew Young
Office:	BLOC 641E
Phone:	N/A
E-Mail:	mpyoung@tamu.edu
Office Hours:	TBD

Course Description

Introduction to automorphic forms, automorphic representations, L-functions, and their interconnections; adeles, ideles, Fourier analysis on locally compact abelian groups, classification of p-adic representations.

Course Prerequisites

MATH 636 or equivalent.

Special Course Designation

[None](#)

Course Learning Outcomes

List one or more learning outcomes for the course.

A learning outcome is a statement regarding what the student will know or be able to do upon successfully completing the course. It must be both observable and measurable. The outcomes may include competencies developed in the course. Additional assistance with learning outcomes is available through the Center for Teaching Excellence and the Office of Institutional Assessment.

- Understand the definitions and basic properties of automorphic representations.
- Understand how automorphic representations relate to automorphic forms and L-functions.
- Understand the statement of the classification of p-adic representations.

Textbook and/or Resource Materials

Required textbook: Automorphic representations and L-functions for the general linear group, volume 1. Authors: Dorian Goldfeld and Joseph Hundley.

Grading Policy

- A: 90%-100%, B:80%-89.9%, C:70-79.9%, D:50-69%, F: 0-49.9%.
- Grades will be determined by homeworks (90% of grade) and class participation (10% of grade).

Late Work Policy

- Late work submitted after the established deadline will not be accepted.

Work submitted by a student as makeup work for an excused absence is not considered late work and is exempted from the late work policy ([Student Rule 7](#)).

Course Schedule

- Week 1: p -adics, characters.
- Week 2: adèles, p -adic analysis
- Week 3: Automorphic representations and L-functions for $GL(1)$
- Week 4: Classical theory of automorphic forms for $GL(2)$
- Weeks 5-6: Automorphic forms for $GL(2)$ over the adèles
- Weeks 7-8: Automorphic representations for $GL(2)$ over the adèles
- Weeks 9-12: Theory of admissible representations of $GL(2)$ over the p -adics
- Week 13: The contragredient representation.
- Week 14: Unitary representations.
- Week 15: The standard L-function for $GL(2)$ over the adèles.

Homework will be collected weekly.

University Policies

This section outlines the university level policies that must be included in each course syllabus. The TAMU Faculty Senate established the wording of these policies.

NOTE: Faculty members should not change the written statements. A faculty member may add separate paragraphs if additional information is needed.

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to [Student Rule 7](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" ([Student Rule 7, Section 7.4.1](#)).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" ([Student Rule 7, Section 7.4.2](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See [Student Rule 24](#).)

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" ([Section 20.1.2.3, Student Rule 20](#)).

Texas A&M at College Station

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below). Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Texas A&M at College Station

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Texas A&M at College Station

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with [Counseling and Psychological Services \(CAPS\)](#).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](#).

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus

Texas A&M College Station

*Students who need someone to talk to can contact Counseling & Psychological Services (CAPS) or call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the 988 Suicide & Crisis Lifeline (988) or at [988lifeline.org](https://www.988lifeline.org) *Links to an external site.**