

# Automorphic Forms II

## Infosheet

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TECHNISCHE  
UNIVERSITÄT  
DARMSTADT

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### Tentative of program

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This course provides an introduction to Siegel modular forms, which are generalizations of classical (elliptic) modular forms to several complex variables. We will explore a range of fundamental topics, including the geometry of the Siegel upper half-space, theta and Klingen Eisenstein series, Fourier expansions and Koecher's principle, Hecke theory, the Siegel–Weil formula, theta lifts.

Upon successful completion of the course, you will:

- Be acquainted with fundamental examples of Siegel modular forms.
- Acquire a foundational understanding of generating series of representation numbers for positive definite lattices.
- Be prepared to engage in more advanced study or research in the field of automorphic forms.

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### Participation requirements

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Target: Master students (also late bachelor).

Recommended: Complex Analysis. Prior attendance in Automorphic Forms I is helpful but not required.

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### Lectures

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There will be one lecture per week on **Tuesdays**, from **11:40 to 13:20**, in Room **S2|15 401**.

The lectures begin on **Tuesday 13, October 2026**.

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### Online platform

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All information concerning the course, including exercise sheets, Zoom links, recordings and announcements, will be available on moodle. If you have signed up for the TUCaN course, you will be automatically enrolled in the associated Moodle course. Please make sure to regularly check for announcements in that course – you may redirect these to your university email address in the settings.

The course may be reached via **<https://moodle.tu-darmstadt.de/course/view.php?id=50701>**.

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### Lecture notes

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Handwritten lecture notes will be uploaded on Moodle after every lecture.

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## Exercises

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There will be one exercise session **every other week**, on **Mondays**, from **11:40 to 13:20**. The first exercise session is on **Monday 26, October 2026**.

An updated plan with dates and location of the exercise sessions is available on Moodle. Possible modifications will be announced during the lectures and per email.

The exercise sheets will be uploaded in Moodle.

The exercises are fundamental material to fully comprehend the content of the course. Therefore, it is highly recommended to solve the exercises in order to pass the exam.

The solutions will be published in Moodle after every exercise session. There is no homework to be handed in.

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## Office hour

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If you want to meet the lecturers (questions, curiosities, clarifications, ...), you can fix an appointment per email.

| Lecturer              | Office      | Email address                       |
|-----------------------|-------------|-------------------------------------|
| Prof. Jan Bruinier    | S2   15 411 | bruinier@mathematik.tu-darmstadt.de |
| Dr. Riccardo Zuffetti | S2   15 426 | zuffetti@mathematik.tu-darmstadt.de |

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## Final exam

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The final exam is oral. Days for possible oral exams will be fixed during the last weeks of lectures.

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## Literature

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- Bruinier–van der Geer–Harder–Zagier: The 1-2-3 of modular forms.
- Freitag: Siegelsche Modulfunktionen.
- Klingen: Introductory lectures on Siegel modular forms.
- Kohnen: A short course on Siegel modular forms (Postech lecture series).