OTTO VON GUERICKE UNIVERSITÄT MAGDEBURG

INF FAKULTÄT FÜR INFORMATIK

SwarmLab

Course

Evolutionary Multi-Objective Optimization

Summer 2021

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Chair of Computational Intelligence

Faculty of Computer Science

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Team

Lectures

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Tutorials

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Research topics:

- Computational Intelligence (CI)
- Evolutionary Algorithms, Multi-Objective Optimization, Decision-Making
- Swarm Intelligence, Collective Decision-Making, Artificial life, CI in computer games
- Swarm Robotics, Evolutionary Robotics

Courses at the Chair of Computational Intelligence

In WS:

- Intelligente Systeme, Bachelor (5 CP)
- Swarm Intelligence, Master (6 CP)
- Bayes Networks, Master (6 CP) --> Professor Kruse

In SS:

- Computational Intelligence in Games, Bachelor (5 CP) und Master (+ Extra Work 6 CP)
- Evolutionary Multi-Objective Optimization, Master (6 CP)
- Fuzzy Systems, Master (6 CP) --> Professor Kruse
- Introduction to Software Engineering for Engineers (6 CP)

WS und SS:

- Seminar Computational Intelligence, Swarm Intelligence, Swarm Robotics
- Software Projects in SwarmLab – Flying Swarm, Rolling Swarm, Driving Swarm
- Team Projects in SwarmLab – Flying Swarm, Rolling Swarm, Driving Swarm

Time and locations of this course

The course will be held online.

Lectures:

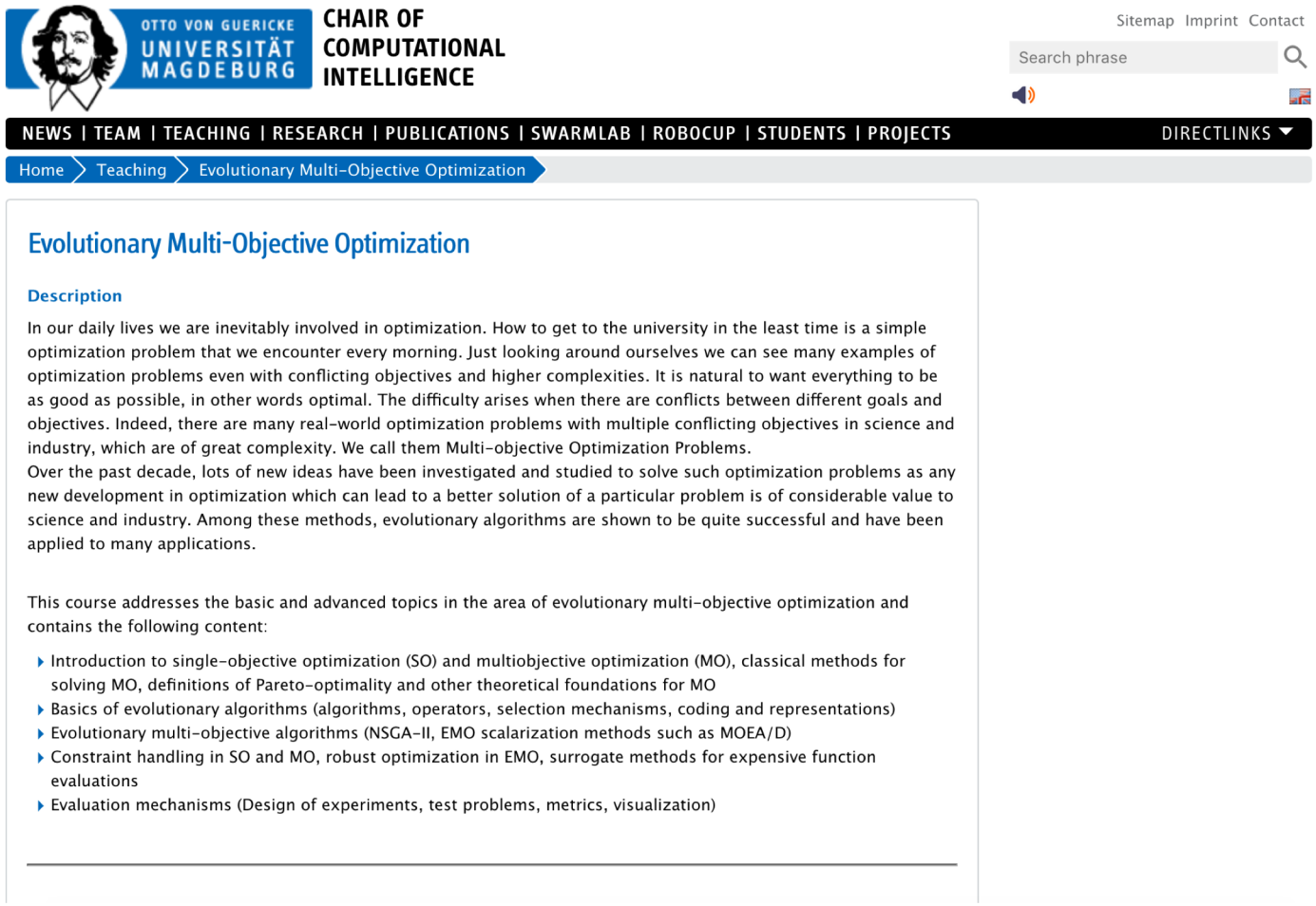
- The lecture is provided asynchronously
- Slides and videos are available on the webpage
- Video recordings of the lectures are available every week

Tutorials:

- The tutorials are held synchronously as online meetings
- Five tutorial groups are available. Registration for the tutorials is necessary
- **Deadline for the registration: 11th April 2021**
- Assignment sheets are available every week on the webpage

Webpage

All relevant information about this course available on the Webpage:
http://www.ci.ovgu.de/Teaching



Tutorials

For the lecture there will be weekly tutorials.

As a **requirement for the exam**, you need to attend and actively participate in one of the five tutorial groups of the course.

You need to **apply for a tutorial group** and then visit the group you are assigned to.

Tutorials will be held **online using Zoom. A connection test will be held in the week 12th-16th April for each tutorial group.**

There are five tutorial groups:

	Day	Time	Start (Connection Test)
Tutorial Group 1	Tuesdays	11:15 - 12:45	13.04.
Tutorial Group 2	Tuesdays	13:15 - 14:45	13.04.
Tutorial Group 3	Wednesdays	11:15 - 12:45	14.04.
Tutorial Group 4	Wednesdays	13:15 - 14:45	14.04.
Tutorial Group 5	Thursdays	11:15 - 12:45	15.04.

Tutorials - Registration

To attend a tutorial group, you will need to **apply for a spot** in one of the four groups.

This is done via the LSF system **from 22rd March to 11th April**. Please use the following link to see the tutorial information in the LSF system.

https://lsf.ovgu.de/qislsf/rds?state=verpublish&status=init&vmfile=no&publishid=171907&moduleCall=webInfo&publishConfFile=webInfo&publishSubDir=veranstaltung

After you log in with your student account, you can apply for the tutorials and give preferences for each of the four groups. **Please select all the groups that fit with your schedule, and then give preferences for each of them.**

We will assign the free spots in the groups based on the preferences you gave for each group. Important: There is a **limited space** for each group.

Note that the **final assignment** of the free spots will be done **after the application deadline is over**, and you will be **informed via email** which group you are in and if you can participate in this course or not.

Tutorials - Participation

There will be **written assignments** during the semester, published on the homepage of the course every week.

Participation in the tutorials consists of:

- Preparing answers to the assignments at home
- Indicating before each tutorial in the E-Learning (Moodle) course whether or not you are volunteering for each assignment
- Attending the tutorials and presenting your solutions to your fellow students

You are allowed to write the exam only if you volunteer for at least 2/3 of all assignments and present at least two times.

Assignments will include theoretical and practical tasks, e.g. explaining and analysing certain concepts or applying methods and calculations. Programming assignments are also possible.

Tutorials - Remarks

Each week, one assignment sheet will be discussed. You only submit and present assignments in the respective week where these assignments are scheduled to be discussed.

You should only submit and present **in your own tutorial group**.

Visiting the other tutorial groups is possible, but it should **remain an exception** (e.g. because of illness or other important appointments) and should be announced beforehand.

In case of illness, you should **notify your TA** about your absence beforehand. You can then attend another tutorial group in that week.

Submissions via **Email are not possible**, with the only exception being that you are ill.

If you have a certificate of illness from your physician, the respective assignment sheet will not be counted when calculating your percentage of solved assignments in the end.

Tutorials - Remarks

Remarks for solving assignments and volunteering for presentation

- If you have difficulties, you can ask your fellow students or your TA for help.
- Please only volunteer for assignments if you are prepared to present your solution.
- Your solutions during the presentations do not have to be 100% correct. It should be visible that you **made a serious attempt to solve the assignment**.
- In case we ask you to present a solution which you volunteered for, but you can not present or it is clear that you did not made a reasonable attempt to solve the assignment:
  - the first time we will void the volunteer-point for that assignment,
  - the second time we will void the volunteer points for the whole assignment sheet.
  - If this happens a third time, you will not be permitted to write the final exam.

Tutorials - Remarks

- Participation in the tutorials will be done via the conference software Zoom:
  - https://ovgu.zoom.us/

- You require a microphone for presenting your solution in the online lectures. You should **install the Zoom client** for being able to use the annotation function and to be able to **share your screen** while you present your solutions.

- The **first tutorial will be held on the week 12th - 16th April**. In that week, we will perform a connection test to assure that all students are able to connect to the meeting of their respective groups. We will also provide you with details on how to volunteer for the assignments in the E-Learning (Moodle) Course.

- The **first assignment sheet will be discussed in the tutorial in the following week (19th – 23rd April).**

- Please note that you can not subscribe to the Moodle course yourself, but we will register you in the course once we assign you to a tutorial group. The links and passwords to the Zoom-meetings will also be available there.

Exam

- There will be a written exam of 120 minutes. Details on the format of the exam will be announced at a later time.
- You can only attend the exam if you passed the tutorials.
- The exam questions will be in English. You may answer in English or German.