ChE-605

AI in chemistry and beyond:Highlights in the field

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Cursus	Sem.	Type
Chemistry and Chemical Engineering		Opt.

Language of teaching	English
Credits	1
Session	
Exam	Term paper
Workload	30h
Hours	**32**
Courses	10
Exercises	8
Project	14
Number of positions	

Frequency

Every 3 years

Remark

Next time yearly 2025-2026

Summary

Should have expertise in chemistry, physics or lite and material sciences. Although a very good knowledge in Al-based algorithms is required to fully understand the technical details, a basic knowledge is sufficient to understand the potential of these methods and their applications

Content

The goal of these seminars on Artificial Intelligence in chemistry-related tapies is to promote this line of research , spark new ideas, and boas! exchanges with the community.
Speakers will showcase the most recent algorithmic developments and applications. The seminars, given by EPFL and non-EPFL experts in the field either from academia or industry, are addressed to students and researchers from EPFL who have expertise in chemistry, physics, life , and material sciences.
This series of monthly seminars will allow attendees to understand the research done by leaders in the field , the implications of Artificial Intelligence on chemistry and beyond, and to create new ideas for their research activities. ln particular, the attendees will:
1) acquire technical ski lis in the different types of artificial intelligence-based algorithms
2) have an overview of the state of the field and will be able to put recent work in context
3) explore concrete applications in chemistry, physics, life , and material sciences.
The speakers will be invited to corne al EPFL and will visit the labs for one day, in order to favor interactions and collaborations. The invited speakers and talk tilles will be announced one month in advance. ln case the seminar will take place online, recordings will be made accessible on SWITCHtube with the agreement of the speaker.
At the end of the semester, the students are required to deliver a report summarizing the main tapies addressed in the seminars with a special emphasize on one particular seminar, and a critical assessment of what they learned.

Note

In principle online course
Timetable here
https://www.epfl.ch/schools/sb/research/isic/news-events/machine-learning-seminars/

Keywords

Artificial lntelligence-based algorithms, Artificial Intelligence applications in chemistry, physics , life and material, Seminar series

Learning Prerequisites

Required courses

1) Machine Learning, CS-433, 2) Deep Learning EE-559, 3) Artificial Neural
4) Networks, CS-456

Assessment methods

Term paper: At the end of the Academic year, the students are required to deliver a report summarizing the main tapies addressed in the seminars with a special emphasize on one particular seminar, and a critical assessment of what they learned.

Resources

Websites

- https://www.epfl.ch/schools/sb/research/isic/news-events/machine-learning-seminars/