
Modulbezeichnung: **Algorithmic Game Theory (AGT)** **5 ECTS**
 (Algorithmic Game Theory)

Modulverantwortliche/r: Yiannis Giannakopoulos

Lehrende: Yiannis Giannakopoulos

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| Startsemester: WS 2021/2022 | Dauer: 1 Semester | Turnus: jährlich (WS) |
| Präsenzzeit: 45 Std. | Eigenstudium: 105 Std. | Sprache: |

Lehrveranstaltungen:

- Algorithmic Game Theory (Optimization in Industry and Economy) (WS 2021/2022, Vorlesung, 2 SWS, Yiannis Giannakopoulos)
- Übung Algorithmic Game Theory (WS 2021/2022, Übung, 1 SWS, Yiannis Giannakopoulos)
- Algorithmic Game Theory (Optimization in Industry and Economy) (WS 2021/2022, Vorlesung, 2 SWS, Yiannis Giannakopoulos)
- Algorithmic Game Theory (Optimization in Industry and Economy) (WS 2021/2022, Vorlesung, 2 SWS, Yiannis Giannakopoulos)

Inhalt:

https://www.studon.fau.de/studon/goto.php?target=univis_2021w.Lecture.41307648

Lernziele und Kompetenzen:

Learning Objectives Upon successful completion of this module, students have a comprehensive understanding of the foundations of algorithmic game theory and algorithmic mechanism design. In particular, they can:

- design and analyse efficient mechanisms for various settings involving rational selfish players, most notably Bayesian revenue-maximizing auctions
- quantify the loss in performance of a system due to selfish behaviour (price of anarchy), most notably in traffic routing
- understand the concept of differentiating between various equilibria outcomes and selecting the desired ones (potentials and equilibrium refinement)
- understand the concept of learning dynamics in game-playing, such as best-responses

Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:

Das Modul ist im Kontext der folgenden Studienfächer/Vertiefungsrichtungen verwendbar:

[1] Computational and Applied Mathematics (Master of Science)

(Po-Vers. 2019w | NatFak | Computational and Applied Mathematics (Master of Science) | Gesamtkonto | Specialisation: Modeling and applied analysis (MApA) and optimization (Opti) | Algorithmic Game Theory)

[2] Computational and Applied Mathematics (Master of Science)

(Po-Vers. 2019w | NatFak | Computational and Applied Mathematics (Master of Science) | Gesamtkonto | Specialisation: Numerical analysis and simulation (NASi) and optimization (Opti) | Algorithmic Game Theory)

Dieses Modul ist daneben auch in den Studienfächern "Data Science (Master of Science)", "Wirtschaftsmathematik (Master of Science)" verwendbar.

Studien-/Prüfungsleistungen:

Algorithmic Game Theory (Prüfungsnummer: 50821)
 Prüfungsleistung, mündliche Prüfung, Dauer (in Minuten): 15
 Anteil an der Berechnung der Modulnote: 100%

Erstabledung: WS 2021/2022, 1. Wdh.: WS 2021/2022

1. Prüfer: Yiannis Giannakopoulos
