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**Modulbezeichnung:** **Advanced Materials Simulation (CE\_AdvMatSci)** **7.5 ECTS**  
 (Advanced Materials Simulation)

Modulverantwortliche/r: Paolo Moretti

Lehrende: Paolo Moretti, Michael Zaiser, Erik Bitzek

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Startsemester: WS 2019/2020

Dauer: 2 Semester

Turnus: jährlich (WS)

Präsenzzeit: 75 Std.

Eigenstudium: 150 Std.

Sprache: Englisch

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**Lehrveranstaltungen:**

Computer Lab (2 practicals, 2.0 ECTS)

Data Driven Materials Science (WS 2019/2020, Vorlesung, Michael Zaiser)

Foundations of Finite Element Simulation (Lecture) (WS 2019/2020, optional, Vorlesung, 1 SWS, Michael Zaiser)

Foundations of Finite Element Simulation (Tutorial) (WS 2019/2020, optional, Übung, 1 SWS, Michael Zaiser)

Seminar Computational Materials Science I (WS 2019/2020, optional, Seminar, 2 SWS, Michael Zaiser et al.)

Dislocation Theory and Dislocation Simulation (Lecture) (WS 2019/2020, optional, Vorlesung, 1 SWS, Michael Zaiser)

Foundations of Computational Materials Science I (Tutorial) (WS 2019/2020, optional, Übung, 1 SWS, Michael Zaiser)

Computational models of biomaterial failure (SS 2020, optional, Vorlesung mit Übung, 2 SWS, Paolo Moretti)

Modelling Materials with Finite Element Simulations (Lecture) (SS 2020, optional, Vorlesung, 1 SWS, Michael Zaiser)

Modelling Materials with Finite Element Simulations (Tutorial) (SS 2020, optional, Übung, 1 SWS, Michael Zaiser)

Generalized Continuum Models of Materials Mechanics (SS 2020, optional, Vorlesung, 1 SWS, Michael Zaiser)

Numerische Methoden in den Werkstoffwissenschaften - Atomistische Methoden (SS 2020, optional, Vorlesung mit Übung, 2 SWS, Erik Bitzek)

Seminar Computational Materials Science II (SS 2020, optional, Seminar, 2 SWS, Michael Zaiser et al.)

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**Inhalt:**

This Module allows for specialization and much deeper understanding and knowledge in computational materials science methods.

**Lernziele und Kompetenzen:**

Students will be able to understand problems which are relevant for state of the art research and will have obtained a broad and deep overview over computational materials science. They will have acquired computer skills that allow them to independently tackle problems of materials science and transfer their knowledge to new problems.

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