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**Modulbezeichnung:** Network Medicine (NETMED) **5 ECTS**  
(Network Medicine)

Modulverantwortliche/r: David B. Blumenthal  
Lehrende: und Mitarbeiter/innen, David B. Blumenthal

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Startsemester: WS 2021/2022	Dauer: 1 semester	Turnus: jährlich (WS)
Präsenzzeit: 30 Std.	Eigenstudium: 120 Std.	Sprache: Englisch

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**Lehrveranstaltungen:**

Network Medicine (WS 2021/2022, Seminar, 2 SWS, David B. Blumenthal et al.)

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**Empfohlene Voraussetzungen:**

Some prior knowledge in graph theory and/or network science is recommended.

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**Inhalt:**

Network medicine is an emerging research field which leverages techniques from molecular biology, bioinformatics, combinatorial optimization, and artificial intelligence to uncover potential disease mechanisms and candidates for causally effective treatments in heterogeneous molecular networks. In this seminar, students will dive into selected hot topics in network medicine.

**Lernziele und Kompetenzen:**

Students will

- develop an understanding of hot topics in the field of network medicine,
- learn how to identify, understand, and contextualize relevant research literature,
- learn how to do a presentation for a scientific audience,
- gain first experience in academic writing.

**Literatur:**

The seminar will roughly follow the following textbook:

- Loscalzo, Joseph, Albert-László Barabási, and Edwin K. Silverman (eds.): Network Medicine: Complex Systems in Human Disease and Therapeutics. Harvard University Press, 2017.

All relevant literature will be made available in StudOn (<https://www.studon.fau.de/crs3922950.html>).

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**Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:**

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

[1] **Artificial Intelligence (Master of Science)**

(Po-Vers. 2021s | TechFak | Artificial Intelligence (Master of Science) | Gesamtkonto | Nebenfach | Nebenfach Artificial Intelligence in Biomedical Engineering | Network medicine)

[2] **Artificial Intelligence (Master of Science)**

(Po-Vers. 2021s | TechFak | Artificial Intelligence (Master of Science) | Gesamtkonto | Hauptseminar | Network medicine)

[3] **Informatik (Master of Science)**

(Po-Vers. 2010 | TechFak | Informatik (Master of Science) | Gesamtkonto | Hauptseminar, Projekt, Masterarbeit | Hauptseminar | Network medicine)

[4] **Informatik (Master of Science)**

(Po-Vers. 2010 | TechFak | Informatik (Master of Science) | Gesamtkonto | Nebenfach | Nebenfach Artificial Intelligence in Biomedical Engineering | Network medicine)

[5] **Medizintechnik (Master of Science)**

(Po-Vers. 2018w | TechFak | Medizintechnik (Master of Science) | M4 Hauptseminar Medizintechnik | Network medicine)

[6] **Medizintechnik (Master of Science)**

(Po-Vers. 2019w | TechFak | Medizintechnik (Master of Science) | Modulgruppe M4 - Hauptseminar | Hauptseminar Medizintechnik / Advanced Seminar Medical Engineering | Network medicine)

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**Studien-/Prüfungsleistungen:**

Network medicine (Prüfungsnummer: 76731)

(englische Bezeichnung: Network Medicine)

Prüfungsleistung, Seminarleistung, Dauer (in Minuten): presentation 90 min.

Anteil an der Berechnung der Modulnote: 100%

weitere Erläuterungen:

Successful 90 min seminar presentation (50% of grade) and short perspective paper on the selected topic (50% of grade, 4 pages ACM style excluding references).

Prüfungssprache: Englisch

Erstablingung: WS 2021/2022, 1. Wdh.: SS 2022

1. Prüfer: David B. Blumenthal

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