03-IMVA-DSS	Decision Support Systems

Lehrform *(teaching format)* / **SWS** *(hours per week)*: 2VL + 2UE

Kreditpunkte *(credit points)*: 6

Turnus *(frequency)*: usually, each summer term

Inhaltliche Voraussetzungen *(content-related prior knowledge/skills)*: NONE

Sprache *(language)*: English

Lehrende *(teaching staff)*: AG Digital Public (Prof. Dr. Dr. Björn Niehaves et al.)

Studiengang *(degree program)*	Module	Semester
Informatik (Master)	ggf. IMVA	from 1st sem.
Management Information Systems (Master)	MIS-INF2	from 1st sem.
Komplexes Entscheiden (Master)	M8	from 2nd sem.
Informatik (Bachelor VF)	(nur *Freie Wahl*)	from 4th sem.

Learning Outcome :

By the end of this course, students will be able to:

- Understand and differentiate the basic concepts of DSS and identify its primary objectives, key components, and architecture.
- Apply common decision theories and models utilized for DSS, such as deterministic, probabilistic, and multi-criteria models (e.g., MAUT).
- Investigate how DSS can enhance decision quality in practice, e.g., using DSS to promote creativity, sustainable development, and public decision-making.
- Understand the opportunities and challenges of artificial intelligence in DSS.
- Synthesize knowledge through student research projects on DSS-related topics.
- Be able to explain and name the UN Sustainable Development Goals (SDGs).

Contents :

The course offers insights into the fascinating and versatile world of Decision Support Systems (DSS). Building on decision-theoretical frameworks, the concept of DSS is explained using real-world application examples about the UN's Sustainable Development Goals (SDGs), emphasizing public decision-making. Students can collaboratively apply and expand the knowledge gained from the course in student research projects.

- Introduction to Decision Support Systems (DSS): definition and goals, components and architecture, classification and differentiation.
- Theoretical basics of human decision making: rational decision making, heuristics and biases, decision strategies, decision models, debiasing.
- Decision support systems in science and practice: Current applications and opportunities for improving decision-making by using DSS with a focus on public administration (e.g., sustainable procurement processes, resource management, and urban planning) and creative processes (e.g., fostering innovation, inspiration, and creation of novel ideas).

- Intelligent decision support systems: Artificial intelligence and DSS; application examples.

The course addresses (as exemplary themes) the following UN Sustainable Development Goals (SDGs):

- *Goal 8 (Decent Work and Economic Growth)*: The course illustrates various capabilities of how DSS can assist institutions and public agencies in servicing customers.
- *Goal 11 (Sustainable Cities and Communities)*: Students receive insights into the possibilities of applying DSS in urban planning using application examples (e.g., 3D models).

Hinweise *(remarks)*: The table lists only the primary / most specific modules to which this course is assigned.