

DS363 课程大纲

- 1、2023 春季学期 (2-6 页码)
- 2、2024 春季学期起 (7-11 页码)

课程详述

COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1. 课程名称 Course Title	数据设计与学习 Design and Learning with Data
2. 授课院系 Originating Department	创新创意设计学院 School of Design
3. 课程编号 Course Code	DS363
4. 课程学分 Credit Value	3
5. 课程类别 Course Type	专业选修课 Major Elective Course
6. 授课学期 Semester	春季 Spring
7. 授课语言 Teaching Language	英文 English
8. 授课教师、所属学系、联系方式 (如属团队授课, 请列明其他授课教师) Instructor(s), Affiliation & Contact (For team teaching, please list all instructors)	Fang Wan Assistant Professor, School of Design wanf@sustech.edu.cn 万芳 助理教授, 创新创意设计学院 wanf@sustech.edu.cn

9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	无 NA				
10.	选课人数限额(可不填) Maximum Enrolment (Optional)					
11.	授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other (Please specify)	总学时 Total
	学时数 Credit Hours	48		0		48
12.	先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	无 N/A				
13.	后续课程、其它学习规划 Courses for which this course is a pre-requisite	无 N/A				
14.	其它要求修读本课程的学系 Cross-listing Dept.	无 N/A				

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

将设计问题看作是决策过程的集合，数据已经成为做出这类决策的重要手段之一。本课程将涵盖数据相关的基础理论与前沿应用，并辅以编程实验使学生掌握实践技能。学生将通过人类活动和自然界产生的数据实例，学习数据的表征、处理、分析、学习以及可视化等技术，从而获得对人类行为、观念、人与环境之间交互的洞察力，沟通信息，进行数据和设计交叉的创造。本课程可根据校外合作机构相关安排等情况组织实地考察，课程内容可能会根据课程目标和实际情况调整。

Viewing design problems as a collection of decision-making processes, data has been one of the critical foundations for making such decisions. This course introduces the basics of data-related methods as well as cutting-edge applications using software or programming language for computational practice. Through case studies of data generated from human activities and nature, students will learn techniques in representation, processing, analysis, learning, and visualization of

data, to gain insights about human behaviors, perceptions, and the interaction between user and their environment, communicate information, and create for the intersection of data and design. The course will include field trips depending on availability and external collaborator and the contents are subject to change to fulfill the course objectives.

本课程有安排实地考察和与外部公司合作的可能性。届时课程内容和活动安排将会调整。

This course will include field trips and collaborations with external companies depending on availability. Lecture and activity schedules are indicative and may be adjusted.

16. 预达学习成果 Learning Outcomes

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

1. Conduct analysis of data and gain insights within a given context.
2. Employ advanced techniques to visualize and communicate information.
3. Demonstrate ability to create for the intersection of data and design.

17. 课程内容及教学日历（如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）

Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

<u>Week</u>	<u>Content</u>
1 (4 hours)	Course introduction, group formation, introduction of external collaborator Introduction of fundamental concepts of data and context
2 (2 hours)	Discussion of student project proposals
3 (4 hours)	Introduction to sources of data and tools for data processing
4 (2 hours)	Work with data and do background research on selected topics and datasets
5 (4 hours)	Introduction of methods of data processing, analysis, learning
6 (2 hours)	Development of proposals of designing and learning with selected topics and datasets

7 (4 hours)	Introduction to visualization of data Development of visualizing, communicating with data.
8 (2 hours)	Design tutorials on student case studies
9 (4 hours)	Interim presentation of student work
10 (2 hours)	Design for interaction with data
11 (4 hours)	Design and Implementation of interaction with data
12 (2 hours)	The transformative potential of big data: case studies
13 (4 hours)	Create for the intersection of data and design
14 (2 hours)	Development of creating for the intersection of data and design.
15 (4 hours)	Final project tutorials and group discussion.
16 (2 hours)	Final presentation with invited guests.

18. 教材及其它参考资料 Textbook and Supplementary Readings

- (2019) Design with Data: Shape our Future Cities. Royal Institute of British Architects.
- (2019) Data Science with Julia, Paul D. McNicholas, CRC Press.
- (2008) Handbook of Data Visualization, Chun-houh Chen, Springer.
- (2015) Storytelling with data, Cole Nussbaumer Knaflic, Wiley.

课程评估 ASSESSMENT

19. 评估形式 Type Assessment	评估时间 of Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance		10%		
课堂表现 Class Performance				
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		20%		
期中考试 Mid-Term Test				
期末考试 Final Exam				
期末报告 Final Presentation		70%		
其它 (可根据需要 改写以上评估方式) Others (The above may be modified as necessary)				

20. 记分方式 GRADING SYSTEM

- A. 十三级等级制 Letter Grading
 B. 二级记分制 (通过/不通过) Pass/Fail Grading

课程审批 REVIEW AND APPROVAL

21. 本课程设置已经过以下责任人/委员会审议通过

This Course has been approved by the following person or committee of authority

Professor Tom Kvan
 Dean, School of Design

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