

DS345 课程大纲

- 1、2022 秋季学期 (2-8 页码)
- 2、2023 秋季学期起 (9-15 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.

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| 1. 课程名称 Course Title | 声音设计 Sound Design |
| 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 | DS345 |
| 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 | 秋季 Fall |
| 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) | Marcel Sagesser Assistant Professor, School of Design marcel_sagesser@alumni.brown.edu |

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|-----|--|-----------------------|------------------------------|-------------------------------|--|---------------------|
| 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 | 32 | | 32 | | 64 |
| 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

这门课程将带领学生们进入音速领域。作为一种一直存在于我们身边却经常被忽视的事物，学生们学习声音在当代媒体应用及其他领域中的情感、叙事、社会和信息潜力。这门课程的重点是将声音作为一种可塑的原材料，我们可以制作，可以设计。学生将学习从零开始合成声音，发展关键的听力技能，分析声音和情感的词汇，并提高他们在未来的研究项目中构建听觉世界的技能。这些技能将帮助学生在他们作为设计师的生活中更有批判思维地设计无形的、社会性的体验。除了了解声学、声音生成、作曲和音频编辑的基本原理之外，本课程还会研究在数字媒体中的声音传递。学生将参与英语课堂讨论，将进行个人和小组活动，他们将自行选择开发、制作和提交一个设计活动相关的大型声音设计项目。

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 takes the students on a journey into the realm of the sonic. As something that is quite always around us and

yet often remains underinterrogated, students learn about the emotional, narrative, social, and informative potential that sound has in contemporary media applications and beyond. This course focuses on sound as a malleable, raw material that we can *craft*, and that we can *craft with* – that is, sound as an opportunity for design. Students will learn to generate sound from scratch with synthesis, and by so doing, will develop critical listening skills, a vocabulary to analyze sound & affect, and will sharpen their skill to imagine auditory worlds for their future projects. The gained skill will help students more critically design intangible, socially engaging experiences in their life as designers. Beyond understanding the basic principles of acoustics, sound generation, composition, and audio editing, this course also surveys contemporary opportunities for the delivery of sound in digital media. The students will engage in English-language classroom discussion, will work both individually and in groups, and they will develop, produce and deliver a large-scale sound design project of their own choosing that is relevant to their design activities outside of this course.

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

Skills: composition, sound generation, editing

16. 预达学习成果 Learning Outcomes

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| <p>本课程结束时，学生将能够：</p> <ol style="list-style-type: none"> 1. 批判性地描述声音在媒体应用中的潜力 2. 运用听力技巧、音频和情感词汇来描述声音 3. 介绍声音生成、合成和编辑方面的实验 4. 用声音制作和传递他们自己的高质量创意项目 <p>At the end of this course, students will be able to:</p> <ol style="list-style-type: none"> 1. Critically describe the potential of sound in media applications 2. Apply listening skill, audio and affect vocabulary to describe sound 3. Present experimentation in sound generation, composition, and editing 4. Propose, craft, and deliver their own high-quality creative project in sound |
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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 | <p>Lecture (4 hours) Course Introduction. Basic theory in acoustics, listening, and affect/emotions. Defining some vocabulary. Non-musical vs. musical sounds, rhythmic versus static, ambient versus foreground, noise, voices, and fluid in-betweens.</p> <p>Practice (4 hours) Field excursion: journey into the sonic of critical outdoor listening. Group work: analyze, describe, and present observations to peers.</p> |
| | <p>Lecture (4 hours) Economy and classification of sound material. Synthesis versus sampling. Survey of audio applications in contemporary media. Potential of audio in media applications: what can sound do? Examples of emotional, narrative, social, and informative role of sound.</p> <p>Practice (4 hours) Group work: view and listen to example works from the syllabus. Analyze and represent the sound as precisely as possible. Reflect and present on how the experience of listening has affected you.</p> |

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| 2 | <p>Lecture (4 hours) Generating sound from scratch: the principles of sound synthesis. Understanding sound as a malleable, raw material. Differences between synthesis and working with footage (sampling).</p> <p>Practice (4 hours) Analog synthesis. Group work: apply knowledge to create a set of synthetic sounds. Present results to peers. Engage in analytical listening and critical discussion: what do we hear? How does the sound affect us?</p> |
| | <p>Lecture (4 hours) Generating sound in the digital: sound synthesis in code. Introduction to JavaScript, Web audio API, and Tone.js. Interaction with user input.</p> <p>Practice (2 hours) Digital synthesis. Individual work: code sounds from scratch and make them playable in the web browser.</p> <p>Interim Review (2 hours) with invited guest Presentations: Present your experiments with sound synthesis. What could we do with these sounds? Identify & discuss opportunities/applications. Receive formative feedback on sound design and presentation. [Foreshadow final project development]</p> |
| 3 | <p>Lecture (4 hours) Imagining auditory worlds. The basics of audio composition: integrating, collaging, cutting, transitioning, decontextualizing. Ethics of composing meaning.</p> <p>Practice (4 hours) Final project development. Work individually or in groups. Present project proposal to the class. Give and receive constructive feedback.</p> |
| | <p>Lecture (4 hours) Composing sound is composing time: linear, cyclical, non-linear, interactive, and generative structures. How a narrative is constructed in sound.</p> <p>Practice (4 hours) Studio work on final projects. Software, tool and technique tutorials will be given according to student projects' needs. Demonstrate, apply, and connect several of the techniques learned in this course.</p> |
| 4 | <p>Lecture (4 hours) Survey of sound delivery: from mobile phone applications, game audio, VR & spatial audio, film sound and scoring, interactive web audio applications to sound for product design, architecture, and urban space. Discuss delivery of student projects. Prepare for final review.</p> |

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| | <p>Final Review (4 hours) with invited guests Student presentations of their sound projects. Critique session.</p> |
| | <p>Lecture (4 hours) Evaluating student projects & identifying sound design opportunities for the students' future design projects. Survey sound both for object- and experience-based products. Listen again: how has our listening changed over the span of this course?</p> <p>Practice (4 hours) Field trip: 'Sound in Context,' excursion around the city of Shenzhen to several outdoor and indoor sites. Listen to the city. Identify future design opportunities. (Field trip and locations are conditional on availability of institutions and collaborators).</p> |

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

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| <p>Core Readings</p> <ul style="list-style-type: none"> • Case, Amber, and Aaron Day. 2018. Designing with Sound: Fundamentals for Products and Services. 1st edition. Beijing; Boston: O'Reilly Media. • Novak, David, and Matt Sakakeeny. 2015. Keywords in Sound. Durham NC: Duke University Press. • Rodgers, Tara. 2015. "Synthesis." In Keywords in Sound, edited by David Novak and Matt Sakakeeny, 208–21. Durham NC: Duke University Press. <p>Additional Readings</p> <ul style="list-style-type: none"> • Born, Georgina, and David Hesmondhalgh. 2000. Western Music and Its Others: Difference, Representation, and Appropriation in Music. University of California Press. • Collins, Karen. 2013. Playing with Sound: A Theory of Interacting with Sound and Music in Video Games. Illustrated edition. Cambridge, Massachusetts: The MIT Press. • Collins, Karen. 2019. Beep: Interviews from the Documentary. Independently published. • Horowitz, Steve, and Scott R. Looney. 2014. The Essential Guide to Game Audio: The Theory and Practice of Sound for Games. CRC Press. • Lane, Cathy, and Angus Carlyle. 2013. In the Field: The Art of Field Recording. Uniform-books. • Sinclair, Jean-Luc. 2020. Principles of Game Audio and Sound Design. 1st edition. New York, NY: Focal Press. • Snoman, Rick. 2019. Dance Music Manual. Routledge. • Théberge, Paul. 2003. "Ethnic Sounds' - The Economy and Discourse of World Music Sampling." In Music and Technoculture, edited by René T. A Lysloff and Jr Leslie C. Gay. Middletown, Conn.: Wesleyan University Press. |
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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

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课程详述

COURSE SPECIFICATION

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| 1. | 课程名称 Course Title | 声音设计 Sound Design |
| 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 | DS345 |
| 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 | 秋季 Fall |
| 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) | Marcel Sagesser Assistant Professor, School of Design msagesser@sustech.edu.cn |

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|-----------------------------|--|-----------------------|------------------------------|-------------------------------|--|---------------------|
| 9. | 实验员/助教、所属学系、联系方式 | 无 NA | | | | |
| Tutor/TA(s), Contact | | | | | | |
| 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 | 32 | | 32 | | 64 |
| 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

这门课程将带领学生们进入音速领域。作为一种一直存在于我们身边却经常被忽视的事物，学生们学习声音在当代媒体应用及其他领域中的情感、叙事、社会和信息潜力。这门课程的重点是将声音作为一种可塑的原材料，我们可以制作，可以设计。学生将学习从零开始合成声音，发展关键的听力技能，分析声音和情感的词汇，并提高他们在未来的研究项目中构建听觉世界的技能。这些技能将帮助学生在他们作为设计师的生活中更有批判思维地设计无形的、社会性的体验。除了了解声学、声音生成、作曲和音频编辑的基本原理之外，本课程还会研究在数字媒体中的声音传递。学生将参与英语课堂讨论，将进行个人和小组活动，他们开发、制作和提交一个与体验设计相关的大型声音设计项目。本课程或将安排实地考察和与外部合作者合作的可能性。届时课程内容和活动安排将会调整。

This course takes the students on a journey into the realm of the sonic. As something that is quite always around us and yet often remains underinterrogated, students learn about the emotional, narrative, social, and informative potential that sound has in contemporary media applications and beyond. This course focuses on sound as a malleable, raw material that we can *craft*, and that we can *craft with* – that is, sound as an opportunity for design. Students will learn to generate sound from scratch with synthesis, and by so doing, will develop critical listening skills, a vocabulary to analyze sound & affect, and will sharpen their skill to imagine auditory worlds for their future projects. The gained skill will help students more critically design intangible, socially engaging experiences in their life as designers. Beyond understanding the basic principles of acoustics, sound generation, composition, and audio editing, this course also surveys contemporary opportunities for the delivery of sound in digital media. The students will engage in English-language classroom discussion, will work both individually and in groups, and they will develop, produce, and deliver a large-scale sound design project that is relevant for experience design. This course might include field trips and/or collaborations with external partners depending on availability. Lecture and activity schedules are indicative and may be adjusted.

Skills: composition, sound generation, editing

16. 预达学习成果 **Learning Outcomes**

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| <p>At the end of this course, students will be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate skill in sound composition and sound editing 2. Analyze, identify, and critically describe sound design opportunities within experience design 3. Present original research on the social and cultural consequences of sound 4. Realize and present an original high-quality creative project in sound design |
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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 | <p><i>Lecture (4 hours)</i></p> <p>Introduction to sound design: what can sound do within experience and industrial design?</p> <p>Welcome, overview of the course content, practice project, and the expectations about academic, ethical and creative rigor</p> |
| 2 | <p><i>Lecture(4 hours)</i></p> <p>Theory of acoustics and listening: what is sound, and how do we perceive it?</p> <p>Basic knowledge, skill, and keywords, introduction to sound editing</p> |
| 3 | <p><i>Lecture and Practice (4 hours)</i></p> <p>In the studio: sound recording</p> <p>The principles of microphones, loudspeakers, storage, recording techniques, norms, and applications</p> |
| 4 | <p><i>Lecture and Practice (4 hours)</i></p> <p>In the machine: sound synthesis</p> <p>The principles of generating sound from scratch; using sound as a malleable raw material to craft with; sound in the machine as an opportunity for interaction</p> |
| 5 | <p><i>Lecture and Practice (4 hours)</i></p> <p>Opportunities for sound in experience design</p> <p>Survey of sound design applications, workshop on identifying and developing new opportunities, project work, background research, idea development</p> |
| 6 | <p><i>Lecture and Practice (4 hours)</i></p> <p>Sound and affect: the social and cultural consequences of sound</p> <p>Theory of affect; sound as emotional, narrative, informative, and ambience. Theory of socio-cultural context of sound-making; project work, background research</p> |
| 7 | <p><i>Lecture and Practice (4 hours)</i></p> <p>Composing sound is composing time: imagining auditory worlds</p> <p>Conceptualizing timelines, perception of time, advanced audio composition: integration, collaging, cutting, transitioning, decontextualizing, working with depth, arranging time, and creating original auditory worlds</p> |

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| 8 | <p><i>Lecture and Practice (4 hours)</i></p> <p>Advanced time structures: non-linearity and interactivity</p> <p>Conceptualizing advanced timelines; non-linear, cyclical, interactive, and generative structures with their social and cultural consequences for users; project work, interim review preparations</p> |
| 9 | <p>Interim Review (4 hours)</p> <p>Presentation and critique of background research and project drafts</p> |
| 10 | <p><i>Lecture and Practice (4 hours)</i></p> <p>Design process: responding to critique and feedback</p> <p>After the critique is before the critique: learning to respond to critique; rethinking the projects; project work, software and tech tutorials as needed by projects</p> |
| 11 | <p><i>Lecture and Practice (4 hours)</i></p> <p>Crafting sound II: advanced synthesis, recording, sampling, and editing techniques</p> <p>Sound as a material to create auditory worlds with; perfecting concepts and ideas in realization; project work; software and tech tutorials as needed by projects</p> |
| 12 | <p><i>Lecture and Practice (4 hours)</i></p> <p>Creating space: sonic architectures and post production</p> <p>When time becomes spatial: thinking time-based sound design as sonic architecture; learning the techniques of spatial processing; filtering, panning, layering, automating volumes, depth, compressing, and mixing sound productions; project work</p> |
| 13 | <p><i>Practice (4 hours)</i></p> <p>Tutorial</p> <p>Work on final projects, internal feedback</p> |
| 14 | <p><i>Lecture and Practice (4 hours)</i></p> <p>How to present something that is sonic: writing about and representing sound</p> <p>Project work, internal feedback, and learning to write and present sound in a report and in a presentation</p> |
| 15 | <p><i>Practice (4 hours)</i></p> <p>Tutorial & Presentation Skill</p> <p>Project work, internal feedback, practice of presentation skill</p> |
| 16 | <p>Final Review (4 hours)</p> <p>Presentation and critique of final projects and project reports; submission of projects and project reports</p> |

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

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|--|
| <p>Core Readings</p> <ul style="list-style-type: none"> • n/a <p>Additional Readings</p> <ul style="list-style-type: none"> • Case, Amber, and Aaron Day. <i>Designing with Sound: Fundamentals for Products and Services</i>. 1st edition. Beijing ; Boston: O'Reilly Media, 2018. • Collins, Karen. <i>Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design</i>. MIT Press, 2008. • Collins, Karen. 2013. <i>Playing with Sound: A Theory of Interacting with Sound and Music in Video Games</i>. Illustrated edition. Cambridge, Massachusetts: The MIT Press. • Collins, Karen. <i>Studying Sound: A Theory and Practice of Sound Design</i>. Cambridge, Massachusetts: The MIT Press, 2020. • Filimowicz, Michael. <i>Foundations in Sound Design for Embedded Media: A Multidisciplinary Approach</i>. Routledge, 2020. • Filimowicz, Michael. <i>Foundations in Sound Design for Interactive Media: A Multidisciplinary Approach</i>. Routledge, 2019. • Horowitz, Steve, and Scott R. Looney. 2014. <i>The Essential Guide to Game Audio: The Theory and Practice of Sound for Games</i>. CRC Press. • Scott-James, Kahra. <i>Sound Design for Moving Image: From Concept to Realization</i>. London ; New York: Bloomsbury Academic, 2018. • Sinclair, Jean-Luc. <i>Principles of Game Audio and Sound Design</i>. 1st edition. New York, NY: Focal Press, 2020. |
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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% | | |

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| 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