

EDUC 281: Technology for Learners

- Quarter: Autumn
- Origin: Technology for Learners addresses the intersection of technology design and learning research to cater to the interests of both technologists and educators.
- Emphasis: The focus in the course is on a few design projects while reading some of the seminal papers that shaped the field of education technology. The design projects are at the level of (paper and/or digital) prototypes to allow for usability testing.
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ENGR 312 / VPTL 312: Science and Engineering Course Design

- Quarter: Winter
- Origin: This course evolved to create an accessible and useful entrypoint for STEM students into topics in education and, specifically, what research tells us about designing STEM courses.
- Emphasis: The emphasis is on a quarter-long project to design a full-fledged curriculum for a STEM course (ideally one that you will be teaching in the future). The course readings and discussions provide students with key research findings from science education literature.
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EDUC 328: Topics on Learning and Technology: Core Mechanics of Learning

- Quarter: Winter
- Origin: This course aims to enhance students' understanding of several research-based mechanisms involved in learning as well as of effective experimental design for learning research.
- Emphasis: The focus is very much on reading in-depth a small number of seminal papers and, toward the end of the course, on designing and running an experiment with human subjects to investigate one of the core mechanics.
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PHYSICS 295 / EDUC 280: Learning & Teaching of Science

- Quarter: Spring
- Origin: This course came into being to provide a safe space for scientists/engineers and educators to learn, discuss, and practice key principles and techniques in science education.
- Emphasis: The emphasis in the course is on reading accessible materials to gain a grounding in learning science principles and seeing how to apply those principles to develop expertise within specific disciplines. Students leave with several activities ready for use in the classroom.
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EDUC 407: Lytics Seminar

- Quarter: Spring
- Origin: Lytics Seminar gives researchers in the field of learning analytics, machine learning, and learning science a space to discuss ongoing research projects and emerging theory.
- Emphasis: The core of the seminar is a research-focused discussion of applying data analytics to learning problems. If you want to find out what questions people in different fields are asking or stay up-to-date on the latest happenings in digital learning research, this is the place to be.
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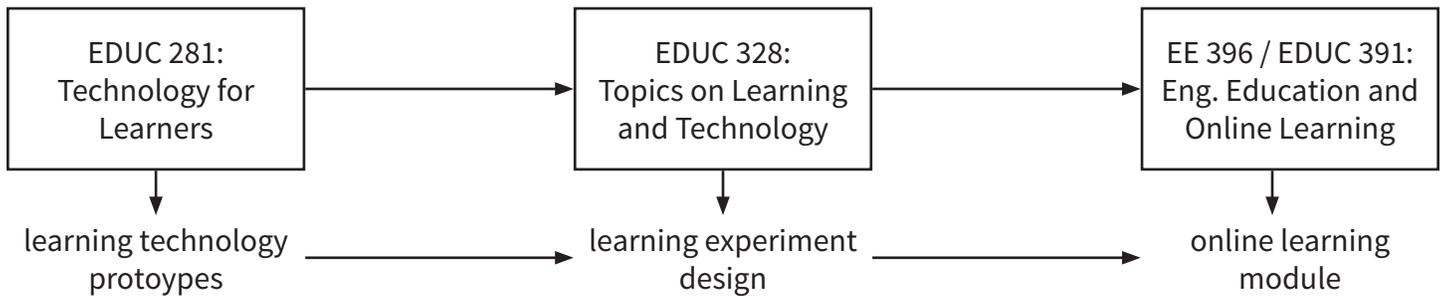
EE 396 / EDUC 391: Engineering Education and Online Learning

- Quarter: Spring
- Origin: This course brings together engineering and education students and puts them on project-based teams to interact with and learn from each other.
- Emphasis: The focus is on working with an interdisciplinary team to create a short online learning module from scratch. Along the way, students learn the fundamentals of learning science and education technology design.
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The Scientist's & Engineer's Guide to Learning Science and Technology Design Courses

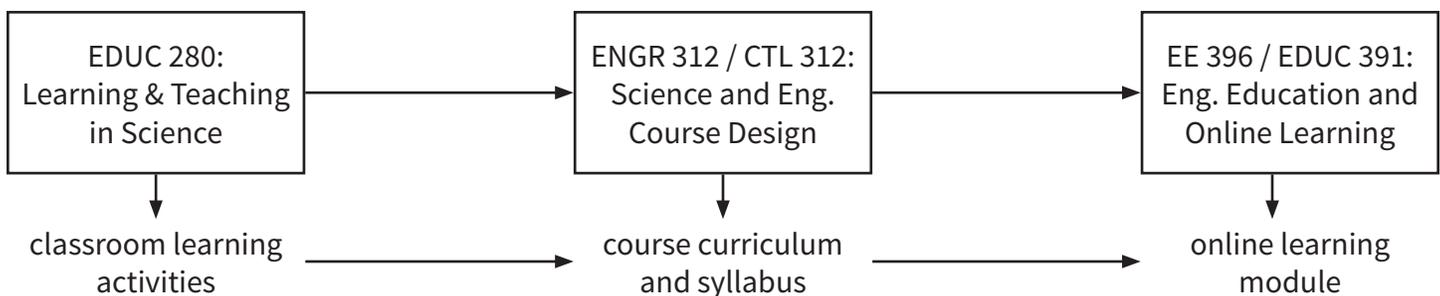
A lot goes into deciding which course to take when and below are a few sample course sequences organized by three intentions/desires. Other courses to look at include CTL 297, ENGR 313, and EDUC 236.

"I want to build"



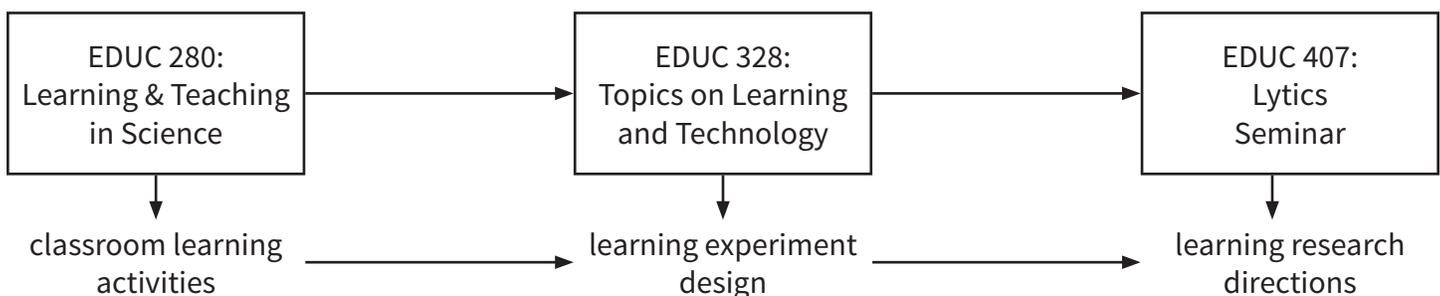
This sequence is very focused on hands-on projects and getting your hands dirty with concepts from the readings and class discussions. Getting initial exposure to education technology through EDUC 281 and diving into how researchers (and designers) actually test for learning in EDUC 328 before bringing it all together to design a short online module in EE 396 / EDUC 391 makes for a solid foundation and lots of practice. You end the year with a healthy portfolio of education technology skills, principles, and prototypes.

"I want to teach"



This sequence focuses on setting the groundwork you need to teach (whether as a TA or a future instructor). In EDUC 280, you learn to define your learning objectives and get practice with designing in-class learning activities. In ENGR 312 / CTL 312, you re-visit your learning objectives but from a course (rather than an activity) design perspective. Finally, in EE 396 / EDUC 391, you create an online learning module based on your learning objectives and course design to help you teach your course material the next time around.

"I want to understand"



This sequence emphasizes the knowledge, skills, and communities to appreciate what learning research is and what the interesting questions are. Through EDUC 280, you gain hands-on understanding of the key science education techniques and principles. In EDUC 328, you expand that knowledge with more seminal papers in learning science and try running an experiment around a learning mechanism. And then, in EDUC 407, you get to mingle with people working at the forefront of data science and learning science.