

UTeach Curriculum Snapshot

March 2013



UTeach offers a streamlined, field-intensive curriculum that is firmly situated within the domains of math and science

Instructional Program Elements

Compact and Flexible Degree Plans

UTeach offers four-year degree plans that fully integrate students' STEM content major requirements and UTeach program requirements and allow students to obtain secondary teacher certification while earning a degree in science, computer science, engineering, or mathematics.

Rigorous, Research-Based Instruction

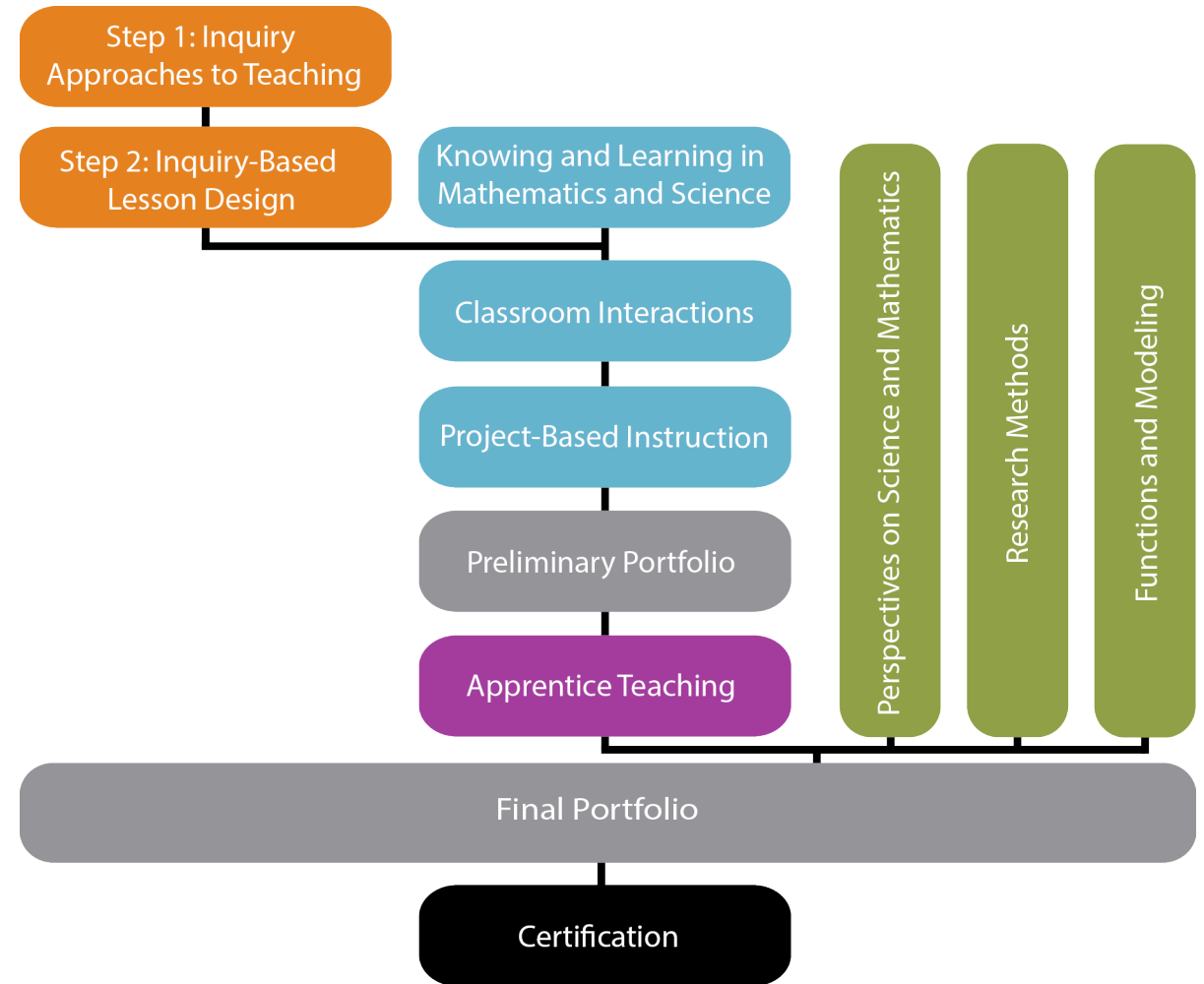
UTeach courses are designed to develop deep understanding of content of particular importance to future secondary STEM teachers and build strong connections between educational theory and practice.

Early and Intensive Field Experiences

UTeach students begin a carefully scaffolded sequence of intensive teaching opportunities in their first semester of the program and continue these field experiences throughout in order to promote confidence and accelerate professional development.

Dedicated Master Teachers

UTeach master teachers - non-tenured clinical faculty with exemplary secondary teaching experience - are exclusively dedicated to student support and program success.



	<i>Step 1: Inquiry Approaches to Teaching</i>	<i>Step 2: Inquiry Based Lesson Design</i>	<i>Knowing and Learning in Mathematics and Science</i>	<i>Classroom Interactions</i>	<i>Project Based Instruction</i>	<i>Apprentice Teaching</i>	<i>Research Methods</i>	<i>Perspectives on Science and Mathematics</i>	<i>Functions and Modeling¹</i>	<i>Reading in the Content Area²</i>
Credit Hours	1	1	3	3	3	7	3	3	3	3
Category	Recruitment Courses		College of Education Course Sequence			Final Practicum	Specially Designed Content Courses			
Instructor	Master Teacher	Master Teacher	Science/Math Education Faculty	Science/Math Education Faculty	Science/Math Education Faculty	Master Teacher	Sciences Faculty Team	History or Philosophy Faculty	Mathematics Faculty	Education Faculty
Course Support	1 TA per section	1 TA per section	1 TA per section	1 TA per section; 1 Master Teacher	1 TA per section; 1 Master Teacher	University Observers	1 TA per section	1 UTeach Intern (or TA) per section	2 UTeach Intern (or TA) per section	
Goals	Prepare, practice, implement and reflect on 5E lessons based on well-tested activities	Prepare, practice, implement and reflect on 5E lessons aligned with district math and science curriculum	Explore the implications of learning theories on individual learning, social (classroom) learning, and within the context of larger social justice issues	Apply theoretical and practical frameworks to analyze various instructional activities, focusing on content development through teacher-student, student-student, and group interactions	Design, implement and evaluate problem- and project-based curricula and processes	Engage in an intensive, culminating experience that equips UTeach students with the tools needed for their first teaching experience	Design and carry out independent scientific inquiries employing the tools used by scientists	Explore historical perspectives that have shaped the content and direction of the sciences; apply historical content and information to K-12 educational contexts	Engage in problem-solving and problem-based learning through explorations and lab activities that strengthen, deepen and expand knowledge of secondary mathematics topics	Apply instructional strategies for reading in grades 4 - 8 science and math.
Totals	28	2	1	NA	3	2	20	NA	NA	NA
Approx. Observation Hours	30	2	1	NA	3	4	20	NA	NA	NA
Lessons Developed and Taught	14	3	3	NA	3	3	NA	2	NA	NA
Number of Teaching Events	132	3	3	NA	3	3	NA	NA	NA	NA
Approx. Teaching Hours	261	3	3	NA	5	10	240	NA	NA	NA
Approx. Total Field Hours	300	5	4	NA	8	23	260	NA	NA	NA
Minimum Observations by University	18	1	1	NA	2	4	10	NA	NA	NA
Field Instructional Level	Upper Elementary	Middle School		High School	Middle or High School	Middle or High School	NA	NA	NA	NA
Design of Field Experience	individual stand-alone math or science lessons delivered in elementary classroom	individual math or science lessons based on district curriculum delivered in middle school classroom	Individual clinical interviews of learners solving math/science problems	multi-day, connected math or science lessons based on district curriculum delivered in high school classroom	multi-day, connected problem-based lessons delivered in secondary classroom and culminating in out-of-classroom, field-based student experience	1/2 day math or science teaching assignment for 12 weeks	NA	Math or Science lessons incorporating history content delivered to peers during class	NA	5E reading lesson plans for middle grades students prepared but not taught
KEY ARTIFACTS							KEY ARTIFACTS			
	5E Lesson plans Written reflections of classroom experiences	5E Lesson plans Final project: Lesson analysis and redesign based on pre- and post-assessment results Written reflections of classroom experiences	Clinical Interview: Analysis of a subject's reasoning related to solving a math or science problem Analysis of the design of math/science learning activities and subsequent outcomes in terms of learning theories Analysis of models of knowing and learning and the instructional implications in the math or science classroom Written reflections and peer to peer discussions of research literature	Lesson plans that address 5Es and include knowledge package or in-depth discussion of concepts as well as accommodations Detailed analysis of teaching based on videotaped evidence, observer feedback and student artifacts and that draws on relevant education literature and discusses pertinent content issues In-depth analysis of conceptual issues in science and/or mathematics, drawing on the research on pedagogical content knowledge Written reflections and peer to peer discussions of research literature	Problem-based field investigation development, analysis and redesign based on feedback and evidence/student artifacts collected Project-based unit that includes rationale and theoretical basis, sequence of events and timeline, objectives, assessment rubrics, and example benchmark and investigation lessons written reflections and analysis of PBI observations that draw on the educational literature Detailed analysis of teaching based on evidence from videotapes, observer notes, and student artifacts collected	Final Portfolio including: 1. Personal Profile: Teaching philosophy, cover letter for employment, resume, academic record 2. Evidence of subject matter knowledge, including evaluation of a model of natural phenomena, analysis of pre-requisite, future and cross-disciplinary connections to a chosen topic 3. Evidence of inclusive design and awareness of equity issues, including development and implementation of an individualized learning plan and resulting assessment artifacts 4. Evidence of ability to prepare effective lessons, including selected lessons and assessments designed to promote learning for all students 5. Evidence of effective classroom environment, including a management plan 6. Evidence of effective instruction and delivery, including video evidence of students engaged in inquiry learning, effective assessment and questioning strategies, and integration of technology to enhance learning 7. Evidence of professional responsibility, including a professional development plan and parent communication plan	Independent inquiries in four categories: home discovery, laboratory investigation, survey and statistical analysis, and experiment in student's discipline Written inquiry reports including design, analysis, conclusions, and references to scientific literature	5E lesson plans integrating the history of science or mathematics throughout Expository research paper Annotated bibliographies for lesson plans or research papers that include search path, provenance, assessment of reliability, and explanation of application to subject	Written explorations and labs demonstrating mathematical connections between important topics Written explorations and labs demonstrating depth of content knowledge relating the concept of "function" to topics such as rate of change, limit and accumulation	Inquiry unit project including five reading lesson plans

1. Functions and Modeling is required only of students certifying to teach math.
2. Reading in the Content Area is required only of students certifying in grades 4 - 8.