



# JacksTeach Course Sequence

\* Step 1: Inquiry Approaches to Teaching (JTCH 1101) - 1 hour

\* Step 2: Inquiry-Based Lesson Design (JTCH 1102) - 1 hour

Knowing and Learning in Mathematics and Science (JTCH 3301) - 3 hours

Functions & Modeling (JTCH 3351) - 3 hours  
Math certification only

\* Classroom Interactions (JTCH 3311) - 3 hours

Perspectives on Science and Mathematics (JTCH 3361) - 3 hours

Research Methods (JTCH 4351) - 3 hours

\* Project-Based Instruction (JTCH 4301) - 3 hours

\* Apprentice Teaching (JTCH 4901) - 9 hours

\* Courses with field/classroom experience

Total Course Hours: 26-29

## JacksTeach Courses

**JTCH 1101 Step 1: Inquiry Approaches to STEM Teaching** (1 hour) - An introduction to the theory and practice behind inquiry-based mathematics and science instruction. Candidates design and teach lessons in an elementary classroom. Provides 5 hours of field experience and an opportunity for first-hand involvement in a supportive, diverse educational setting so that STEM majors can explore teaching as a career path.

**JTCH 1102 Step 2: Inquiry-Based Lesson Design** (1 hour) - A detailed study of inquiry-based lesson development. Candidates plan and present middle school lessons using research-based, recognized curricula and materials. These lessons are aligned with district curriculum and employ technology. Provides 4 hours of field experience and an opportunity for candidates to thoroughly assess their commitment to STEM teaching. Pre-requisite: JTCH 1101.

**JTCH 1203 Steps 1 and 2 Inquiry-Based STEM Lesson Design** (2 hours) - This course provides an accelerated introduction to the theory and practice behind inquiry-based mathematics and science instruction and lesson development. Candidates design and teach lessons in elementary and middle school classrooms using technology as well as research-based, recognized curricula and materials. The course provides eight hours of field experience and an opportunity for first-hand involvement in a supportive, diverse educational setting so that STEM majors can explore and assess their commitment to STEM teaching as a career path.

**JTCH 2051 Secondary Science and Lab Safety Survey** (0 – 3 hours) – Topics in biology, chemistry, earth and space science, physics, lab safety and management for students seeking a composite science certification in the state of Texas. Pre-requisites: admission to Educator Preparation Program or permission of JacksTeach co-director.

**JTCH 3301 Knowing and Learning in Mathematics and Science** (3 hours) - A study of the concepts and strategies involved in knowing and learning in secondary mathematics and science, with a focus on instructional practices including direct teaching and questioning, interactive discussion, collaborative group work, and formative and summative assessment. Candidates conduct clinical interviews with learners engaged in domain-specific problem-solving activities. Pre-requisite: JTCH 1101 or JTCH 1203.

**JTCH 3351 Functions and Modeling** (3 hours) - An in-depth examination of function-related mathematical content knowledge from algebra through calculus. Connections between various areas of mathematics, problem-based learning, and applications of mathematics are emphasized. Required for math majors, optional for science majors. Pre-requisites: JTCH 1101 and JTCH 1102, or JTCH 1203; MATH 2313 or MATH 2413 or concurrent enrollment. Fulfills 3 hours of mathematics electives for the BS Mathematics.

**JTCH 3361 Perspectives on Science and Mathematics** (3 hours) - Topics and episodes in the history of science and mathematics, with emphasis on the dynamic nature of these fields and how practical needs, social conflicts and individual personalities shaped their content and direction. Candidates design, present, and revise middle and high school science and math lessons that incorporate the history of science or math. Pre-requisites: JTCH 1101 and JTCH 1102, or JTCH 1203.

**JTCH 3311 Classroom Interactions** (3 hours) - An examination of the interplay between teachers, students, and content and how such interactions enable students to develop deep conceptual understanding of mathematics and science. Candidates plan and teach multi-day high school mathematics or science lessons and analyze data on student participation and performance. Candidates should have 15 hours in their teaching field and be admitted to the EPP prior to taking this course. Provides 20 hours of field experience. Pre-requisite: JTCH 3301 and admission to Educator Preparation Program.

**JTCH 4351 Research Methods** (3 hours) - An introduction to the specific techniques needed to address scientific questions. Candidates design and carry out independent inquiries, incorporate statistics to interpret results, and present their work via an oral presentation and a scientific paper. Science candidates complete laboratory safety certification. Pre-requisite: JTCH 1102 or JTCH 1203.

**JTCH 4301 Project Based Instruction** (3 hours) - A detailed examination of the project-based instructional approach. Candidates use project-based learning design principles to develop an interdisciplinary unit linked to district, state and national content and inquiry standards that they teach in a secondary STEM classroom over a multi-week period. Provides 30 hours of field experience. Prerequisites: JTCH 3311 and admission to Educator Preparation Program.

**JTCH 4901 Apprentice Teaching** (9 hours) - During this final course in the JacksTeach program, candidates receive extensive and individualized mentorship to reinforce and expand their teaching strategies and professional development. Apprentice teaching is comprised of field experiences in local public secondary schools and a weekly seminar with master teachers for candidates to share experiences and work on problems they encounter in the field. Pre-requisites: JTCH 4301, EPP enrollment and permission of JacksTeach director or co-director.