Excellence in STEM Teacher Preparation

The UTeach Secondary STEM Teacher Preparation Model
Excellence in STEM Teacher Preparation

The UTeach Secondary STEM Teacher Preparation Model
State & National Context

Poverty and Educational Outcomes

Persistent STEM teacher shortages, declining new teacher production

Recruiting students in high-need areas to teaching (American Physical Society Panel on Public Affairs)
Poverty and Educational Outcomes
Poverty and Educational Outcomes
## Long-Term Trend NAEP Mathematics Scores for Whites, Hispanics, and Blacks

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Year</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>1982</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>220</td>
</tr>
<tr>
<td></td>
<td>1994</td>
<td>240</td>
</tr>
<tr>
<td></td>
<td>1999</td>
<td>260</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>280</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1982</td>
<td>210</td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>1994</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>1999</td>
<td>270</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>290</td>
</tr>
<tr>
<td>Black</td>
<td>1982</td>
<td>220</td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>240</td>
</tr>
<tr>
<td></td>
<td>1994</td>
<td>260</td>
</tr>
<tr>
<td></td>
<td>1999</td>
<td>280</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>300</td>
</tr>
</tbody>
</table>

The graph shows the trend in NAEP mathematics scores for Whites, Hispanics, and Blacks from 1982 to 2008.
Persistent STEM teacher shortages, declining new teacher production

<table>
<thead>
<tr>
<th>Subject</th>
<th>Number of Teachers</th>
<th>Percentage with no major in main assignment or not certified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>144,800</td>
<td>38%</td>
</tr>
<tr>
<td>Science</td>
<td>126,300</td>
<td>27%</td>
</tr>
<tr>
<td>Biology</td>
<td>51,800</td>
<td>36%</td>
</tr>
<tr>
<td>Physical Science</td>
<td>64,600</td>
<td>62%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>24,300</td>
<td>66%</td>
</tr>
<tr>
<td>Earth Sciences</td>
<td>12,400</td>
<td>68%</td>
</tr>
<tr>
<td>Physics</td>
<td>13,200</td>
<td>63%</td>
</tr>
</tbody>
</table>

Tension between quality and diversity, inequitable context
<table>
<thead>
<tr>
<th>Subject</th>
<th>Number of Teachers</th>
<th>Percentage with no major in main assignment or not certified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>144,800</td>
<td>38%</td>
</tr>
<tr>
<td>Science</td>
<td>126,300</td>
<td>27%</td>
</tr>
<tr>
<td>Biology</td>
<td>51,900</td>
<td>35%</td>
</tr>
<tr>
<td>Physical Science</td>
<td>64,600</td>
<td>62%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>24,300</td>
<td>66%</td>
</tr>
<tr>
<td>Earth Sciences</td>
<td>12,400</td>
<td>68%</td>
</tr>
<tr>
<td>Physics</td>
<td>13,300</td>
<td>63%</td>
</tr>
</tbody>
</table>
Teacher preparation program completers 2010-2015 for highest-producing states.

Program Type
- Orange: Alternative, not IHE-based
- Blue: Alternative, IHE-based
- Green: Traditional
Tension between quality and diversity, inequitable context
GPA at Graduation versus SAT at entrance by college at UT Austin
Recruiting students in high-needs areas to teaching
(American Physical Society Panel on Public Affairs)
Interest in Teaching

- Physics: 28% Not at all interested, 12% Slightly interested, 6% Somewhat interested, 2% Quite a bit interested
- CS: 23% Not at all interested, 9% Slightly interested, 3% Somewhat interested, 1% Very interested
- Math: 21% Not at all interested, 10% Slightly interested, 6% Somewhat interested, 17% Very interested
- Chemistry: 25% Not at all interested, 9% Slightly interested, 4% Somewhat interested, 3% Very interested
Perceived and Actual Salary

Percentage

Less than $25,000  $25,000-$35,000  $35,000-$45,000  $45,000-$55,000  $55,000-$65,000  $65,000-$75,000  $75,000-$85,000  Greater than $85,000

Actual Salary  Perceived Salary
Incentives: Interested in Teaching

Slightly, somewhat, quite a bit, very interested in teaching

- Access
- Loans Forgiven
- Better Salary
- No Extra Time
- Free Tuition
- $20K Scholarship

-40% -20% 0% 20% 40% 60% 80% 100%

- No Increase - Increase a Little - Increase Somewhat
- Increase Quite a Bit - Increase Very Much
Departmental Support

“Middle or high school teaching is discussed as a career option in my major department.”

- Computer Science
  - Strongly Disagree: -100%
  - Disagree: -50%
  - No Opinion: 0%
  - Agree: 50%
  - Strongly Agree: 50%

- Chemistry
  - Strongly Disagree: -100%
  - Disagree: -50%
  - No Opinion: 0%
  - Agree: 50%
  - Strongly Agree: 50%

- Mathematics
  - Strongly Disagree: -100%
  - Disagree: -50%
  - No Opinion: 0%
  - Agree: 50%
  - Strongly Agree: 50%

- Physics
  - Strongly Disagree: -100%
  - Disagree: -50%
  - No Opinion: 0%
  - Agree: 50%
  - Strongly Agree: 50%

- PhysTEC
  - Strongly Disagree: -100%
  - Disagree: -50%
  - No Opinion: 0%
  - Agree: 50%
  - Strongly Agree: 50%

- Not PhysTEC
  - Strongly Disagree: -100%
  - Disagree: -50%
  - No Opinion: 0%
  - Agree: 50%
  - Strongly Agree: 50%

Legend:
- Strongly Disagree
- Disagree
- No Opinion
- Agree
- Strongly Agree
UTeach Impact

National UTeach Data

UTeach Community

700+ faculty affiliated with UTeach programs

3,500 UTeach Alumni

USFA
Developing STEM literacy for all students through innovation and excellence in diversity-based teacher education.
National UTeach Data

UTeach Community

700+ faculty affiliated with UTeach programs

3300 UTeach Alumni

USEA UTeach STEM
Developing STEM literacy for all students through innovation and excellence in university-based teacher education.
National UTeach Data

45 Universities. 21 States. 7000 Students. 3300 Graduates.
45 Universities. 21 States. 7000 Students. 3300 Graduates.
NATIONWIDE ACTIVE ENROLLMENT IN UTEACH PROGRAMS

- 2008-2009: 1,708
- 2009-2010: 2,837
- 2010-2011: 4,071
- 2011-2012: 4,438
- 2012-2013: 5,264
- 2013-2014: 5,589
- 2014-2015: 5,708
- 2015-2016: 6,280
Graduates identified as underrepresented minorities: 18%
Graduates entering teaching: 86%
Graduates currently teaching: 86%
Graduates who teach in high needs schools: 61%
UTeach Community

700+ faculty affiliated with UTeach programs

3300 UTeach Alumni

Developing STEM literacy for all students through innovation and excellence in university-based teacher education.
UTeach Program Model

UTeach Designed To:
- Remove barriers to participation and expand degree options for STEM majors
- Provide preparation tailored to meet needs of future STEM teachers
- Provide high quality, clinically-intensive preparation to teach

Elements of Success

Operational Elements
- Distinctive Program Identity
- Long-Term Institutional and Community Support
- Active Student Recruitment and Support
- Continuous Improvement

Instructional Elements
- Cross-College and School District Collaboration
- Compact and Flexible Degree Plans
- Dedicated Master Teachers
- Rigorous, Research-Based Instruction
- Early and Intensive Field Experiences
UTeach Designed To:

- Remove barriers to participation and expand degree options for STEM majors
- Provide preparation tailored to meet needs of future STEM teachers
- Provide high quality, clinically-intensive preparation to teach
Operational Elements

• Distinctive Program Identity

• Long-Term Institutional and Community Support

• Active Student Recruitment and Support

• Continuous Improvement
Distinctive Program Identity

Teach North Texas

Come see if Teaching Math, Science, or Computer Science is right for you...
Tuition-Free!

University of North Texas
Distinctive Program Identity

Teach North Texas

Come see if Teaching Math, Science, or Computer Science Is Right for You... Tuition-Free!
Long-Term Institutional and Community Support

- University provides space and instructional budget
- Development a priority - dedicated task force raises funds for endowment
- Student support elements require gift funds
Long-Term Institutional and Community Support

- University provides space and instructional budget
- Development a priority - dedicated task force raises funds for endowment
- Student support elements require gift funds
Active Student Recruitment and Support

FSU-Teach

- the message matters
- incentives work
- paid internships are valuable
- induction support is critical
Active Student Recruitment and Support

- the message matters
- incentives work
- paid internships are valuable
- induction support is critical
Continuous Improvement

- Systematically collects and analyzes program and student level data
- Regularly reviews instructional program
- Solicits feedback from students
Continuous Improvement

- Systematically collects and analyzes program and student level data
- Regularly reviews instructional program
- Solicits feedback from students
Instructional Elements

- Cross-College and School District Collaboration
- Compact and Flexible Degree Plans
- Dedicated Master Teachers
- Rigorous, Research-Based Instruction
- Early and Intensive Field Experiences
Cross-College and School District Collaboration

- Program Co-Directors represent STEM disciplines and STEM Education

- Clinical and research faculty from colleges of science, education, and liberal arts collaborate on course development and instruction

- K-12 mentor teachers ensure high quality field experiences
Cross-College and School District Collaboration

- Program Co-Directors represent STEM disciplines and STEM Education

- Clinical and research faculty from colleges of science, education, and liberal arts collaborate on course development and instruction

- K-12 mentor teachers ensure high quality field experiences
Compact and Flexible 4 Year Degree Plans

- Rigorous STEM degree + certification to teach
- Limited sequence of UTeach courses
- Variety of program pathways
Compact and Flexible 4 Year Degree Plans

- Rigorous STEM degree + certification to teach
- Limited sequence of UTeach courses
- Variety of program pathways
Major Degree + Teaching Option: 120 - 128 Credit Hours

**Major Courses**

- **Math**: 27+ upper division credit hours
- **Science**: 22 - 30 upper division credit hours
- **Computer Science**: 40 upper division

**Core Curriculum & General Education**

- **UTeach Courses**: 24 - 27 Credit Hours
Compact and Flexible 4 Year Degree Plans

- Rigorous STEM degree + certification to teach
- Limited sequence of UTeach courses
- Variety of program pathways
UTeach Course Sequence

Step 1: Inquiry Approaches to Teaching
Step 2: Inquiry-Based Lesson Design

Knowing and Learning in Mathematics and Science
Classroom Interactions
Project-Based Instruction
Preliminary Portfolio
Apprentice Teaching

Perspectives on Science and Mathematics
Research Methods
Functions and Modeling

Final Portfolio
Certification

Total Course Hours: 24 - 30

* Functions & Modeling is only required of math certifiers
* Reading in Content Areas is an additional course required of middle grades certifiers
Dedicated Master Teachers

- Employed as full time clinical faculty
- Teach/co-teach all field-based courses
- Perform variety of program duties - recruitment, managing internships, etc.
- Nurture and support students throughout the program
Dedicated Master Teachers

- Employed as full time clinical faculty
- Teach/co-teach all field-based courses
- Perform variety of program duties - recruitment, managing internships, etc.
- Nurture and support students throughout the program
Rigorous, Research-Based Instruction

Deep Content Knowledge in Discipline + STEM Practices + PCK

Major Degree + Teaching Option: 120 - 128 Credit Hours

**Major Courses**
- Math: 27+ upper division credit hours
- Science: 22 - 30 upper division credit hours
- Computer Science: 40 upper division

**Core Curriculum & General Education**

**UTeach Courses**
24 - 27 Credit Hours

**Pedagogical Content Knowledge**
- UTeach Program Experience
- Major in science discipline
- Computer Science

**Habits of Mind and STEM Practices**
- Critical thinking and problem-solving
- Creativity and innovation
- Collaboration and teamwork
- Research and experimentation
- Communication and presentation
Rigorous, Research-Based Instruction

Deep Content Knowledge in Discipline + STEM Practices + PCK

Major Degree + Teaching Option: 120 - 128 Credit Hours

Major Courses
- Math: 27+ upper division credit hours
- Science: 22 - 30 upper division credit hours
- Computer Science: 40 upper division

Core Curriculum & General Education

UTeach Courses
24 - 27 Credit Hours

Pedagogical Content Knowledge
- UTeach Program Emphasizes
  - Make explicit the connections between math and science teaching/learning
  - Develop pedagogical content knowledge

Habits of Mind and STEM Practices
- UTeach Program Emphasizes
  - Develop and articulate instructional and learning goals
  - Develop positive experiences in STEM education and engagement
Pedagogical Content Knowledge
UTeach Program Emphases

- Make explicit the connections between math and science (and engineering)
- Build strong connections between educational theory and practice
- Integrate content and pedagogy
- Integrate assessment, equity, literacy, and technology topics throughout curriculum
- Develop inquiry- and project-based instructional approaches
Pedagogical Content Knowledge

UTeach Program Emphases

- Make explicit the connections between math and science (and engineering)
- Integrate content and pedagogy
- Integrate assessment, equity, literacy, and technology topics throughout curriculum
- Build strong connections between educational theory and practice
- Develop inquiry- and project-based instructional approaches

5E Inquiry Lesson Model introduced early
Problem- and Project-Based Instruction Capstone Course
• Make explicit the connections between math and science (and engineering)
• Integrate content and pedagogy
• Integrate assessment, equity, literacy, and technology topics throughout curriculum
• Build strong connections between educational theory and practice

- Step 1: Inquiry Approaches to Teaching
- Step 2: Inquiry-Based Lesson Design
- Knowing and Learning in Mathematics and Science
- Classroom Interactions
- Project-Based Instruction
- Apprentice Teaching

Elementary and Middle School Field Teaching

High School Field Teaching

Middle/High School Teaching Problem-Based Lessons

Semester Long Final Clinical Practicum
• Develop inquiry- and project-based instructional approaches

5E Inquiry Lesson Model introduced early

Problem- and Project-Based Instruction Capstone Course

Manor New Tech High School
• Nationally Recognized High School by US News and Report
• 9 of 11 STEM teachers are UTeach graduates
• 60% of the students are Hispanic or African American
• 52% are economically disadvantaged
• In 2011, 84% of graduates went to college
Habits of Mind and STEM Practices

UTeach Program Emphases

- Develop research and information analysis skills
- Develop proficiency in core mathematics and scientific practices
- Inquiry- and project-based instructional practices
- Make explicit the underlying connections between mathematics, science (and engineering)
Habits of Mind and STEM Practices

UTeach Program Emphases

- Develop research and information analysis skills
- Develop proficiency in core mathematics and scientific practices
- Inquiry- and project-based instructional practices
- Make explicit the underlying connections between mathematics, science (and engineering)
Early and Intensive Field Experiences

- Students teach from their first semester and throughout the program
- Students receive intensive coaching and feedback on lesson development and teaching
- Field experiences tightly coupled with courses
Early and Intensive Field Experiences

- Students teach from their first semester and throughout the program
- Students receive intensive coaching and feedback on lesson development and teaching
- Field experiences tightly coupled with courses
Implementing UTeach

Choosing UTeach

- clear need for the program
- institutional support at all levels
- Cross-college collaboration at leadership and faculty level
- Commitment to phase out competing undergraduate pathways
- Commitment to implement all program elements

Implementing UTeach

Elements of Success

- Institutional Leadership
- Student Success
- Faculty Development
- Institutional Support
- Student Retention

Implementation Activities

- Organizational Development
- Student Success
- Faculty Development
- Institutional Support

Working with the UTeach Institute

Funding UTeach

Implementation Highlights

- More Uniform Elements:
  - Faculty Development
  - Cross-College and School-Based ELL Support
  - Assessing Student Achievement
  - Outcomes in Student Learning
  - Compliance and Reporting
  - Measures of Student Performance

- More Varied Elements:
  - Degree Maintenance Courses
  - Student Support
  - Assessment
  - Student Data
  - Measures of Student Success
Choosing UTeach

- clear need for the program
- Institutional support at all levels
- Cross-college collaboration at leadership and faculty level
- Commitment to phase out competing undergraduate pathways
- Commitment to implement all program elements with........

fidelity? 
...to program principles and elements of success

Adoption initially, Adaptation ultimately

Example: Course Fidelity
Evidence of core course components and student outcomes
Measured by materials review
fidelity?

...to program principles and elements of success

Adoption initially, Adaptation ultimately

Example: Course Fidelity

Evidence of core course components and student outcomes

Measured by materials review

Step 1: Inquiry Approaches to Teaching

Course Core Components:
- The course is taught by master teachers—experienced, successful classroom instructors who have joined the university faculty.
- Students observe exemplary teachers and other field supervisors teaching three mathematics or science lessons in local elementary schools with diverse student populations.
- Students receive mentoring from high-quality classroom teachers, as well as instructor feedback based on field observations.
- The course emphasizes using the 5E Instructional Model.
- Key instructional approaches include classroom instruction, lesson evaluation, student reflection, collaboration, and peer coaching.

Course Objectives:
- Students will be able to...
  - demonstrate scientific or mathematical content knowledge in the planning and teaching of three exemplary science or mathematics lessons.
  - write performance objectives aligned with national and state standards and assessments of these objectives for each lesson.
  - design and teach inquiry-based lessons using the 5E Instructional Model.
  - demonstrate awareness of personality and learning differences and discuss the implications for teaching and learning.
  - use grading questions to solicit feedback to determine students’ acquisition of knowledge.
  - choose strategies for achieving instructional equity.
  - demonstrate proficiency in the use of technology for professional productivity purposes.
  - note, set, and evaluate goals, objectives, and expectations.

Materials Review:
- 2 sets paired student reflections
- 2 examples of student lesson plans
- 2 examples of master teacher feedback on classroom teaching
- 2 examples of mentor teacher feedback on classroom teaching
Choosing UTeach

- clear need for the program
- Institutional support at all levels
- Cross-college collaboration at leadership and faculty level
- Commitment to phase out competing undergraduate pathways
- Commitment to implement all program elements with...
Implementing UTeach

Elements of Success

- Distinctive Program Identity
- Cross-College and School District Collaboration
- Long-Term Institutional and Community Support
- Compact and Flexible Degree Plans
- Active Student Recruitment and Support
- Dedicated Master Teachers
- Rigorous, Research-Based Instruction
- Early and Intensive Field Experiences
- Continuous Program Improvement

Implementation Activities

<table>
<thead>
<tr>
<th>Planning Period</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hire master teachers</td>
<td>Hire office staff &amp; advisor</td>
<td>Identify faculty instructors</td>
<td>Plan &amp; implement courses</td>
</tr>
<tr>
<td></td>
<td>Recruit students</td>
<td>Regularly convene steering committee</td>
<td></td>
<td>Support student recruitment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Finalize degree plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Fundraise</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Participate in Institute events</td>
</tr>
</tbody>
</table>
Working with the UTeach Institute

Technical Assistance & Implementation Support

- Dedicated Site Coordinators provide on-demand technical assistance
- Face-to-face Workshops
- Faculty Consultants
- Site Visits

Operational and Instructional Support Resources

Institute Publications
- UTeach videotaped lessons
- Complete UTeach curriculum
- UTeach Development Handbook

Shared Resources
- experienced mentors
- performance resources
- power tools
- self-guides

Collaborated Course Content
- Curricula developed by external program resources

Networking and Knowledge Sharing

Members' Website and Media
- Newsletters
- Web videos
- Shared Resources
- Round Table Council

Financing and Special Interest Groups
- Annual Conference
- Mentor Teacher Resource
- Go Backwards Summit
- Great Beginnings
- National Alliance of Organizations
- UTeach Professional Association

Data Collection and Reporting

Data Collection
- Regular Site Visits
- Interviews and focus groups
- Data sharing via meetings

Online Surveys
- Electronic Surveys
- Mid-term Course Satisfaction
- End of Program

Program Data Submission
- University demographics
- Program demographics
- Course enrollment
- Student demographics

Instructional Program Review
- Course observations
- Instructor interviews
- Course materials review

Reporting
- Individual Progress Reports
- Site Visit Interim Reports
- Survey Summary Reports
- State-Level Reports
- Course-Site Summary Reports
Technical Assistance & Implementation Support

- Dedicated Site Coordinators provide on-demand technical assistance
- Face-to-face Workshops
- Faculty Consultants
- Site Visits
Operational and Instructional Support Resources

Institute Publications
- UTeach Operations Manual
- Complete UTeach Course Curriculum
- UTeach Development Handbook

Shared Resources
- Recruitment Materials
- Development Resources
- Degree Plans
- Course Syllabi
- Job Descriptions

Contributed Course Content
- Course Activities developed by UTeach programs nationwide

Playing Darts with Differential Equations

Abstract
Students explore a stochastic process consisting of pixels being randomly filled in on the screen of a TI-84 calculator. In attempting to answer the questions of how many pixels will fill up the screen and the time this will take, they first discover that the built-in regression models in the calculator are insufficient. Students then shift gears and develop a differential equation model for the rate at which pixels are added as a function of the number of pixels already filled in. Rate data is generated using symmetric difference quotients and plotted. A linear regression is calculated as a model for the differential equation and then solved analytically. This integrated equation is used as a model for the original process and compared with the original data and used to answer the guiding questions. Finally, analogies to other real-world processes are made and discussed.
Networking and Knowledge Sharing

**Members Website and Media**
- Email Lists
- Discussion Forums
- Shared Resources
- Shared Course Content

**Events and Special Interest Groups**
- Annual Conference
- Master Teacher Retreats
- Co-Director Summit
- Course Retreats
- National Alumni Organization
- UTeach Professional Association
Data Collection and Reporting

Data Collection

Regular Site Visits
- Interviews and focus groups
- Data sharing team meetings

Online Surveys
- Entrant, Leaver
- Mid-Term Course Satisfaction
- End of Program
- Alumni

Program Data Submission
- University demographics
- Program demographics
- Course enrollment
- Student demographics

Instructional Program Review
- Course observations
- Instructor interviews
- Course materials review

Reporting

Individual Progress Reports
Site Visit Summaries
Survey Summary Reports
State-level Reports
Cross-Site Summary Reports
Working with the UTeach Institute

Technical Assistance & Implementation Support

- Dedicated Site Coordinators provide on-demand technical assistance
- Face-to-face Workshops
- Faculty Consultants
- Site Visits

Operational and Instructional Support Resources

- Institute Publications
  - UTeach Capstone Manual
  - UTeach Development Handbook
- Shared Resources
  - Resource Manuals
  - Resource Videos
  - Course Manuals
  - Scoring Guides
- Collaborative Course Content
  - Course Assets developed by UTeach program resources

Networking and Knowledge Sharing

- Members’ Website and Media
  - UTeach site
  - The weekly newsletter
- Special Interest Groups
  - Annual Conference
  - Master Teacher Network
  - Go-Getter Grant
  - Centers Network
  - National Alliance of Teachers
  - UTeach Professional Association

Data Collection and Reporting

- Data Collection
  - Regular Site Visits
    - Interviews and focus groups
    - Data sharing team meetings
  - Online Surveys
    - Student Surveys
    - Mid-Year Course Satisfaction
    - End of Program
  - Program Data Submission
    - University demographics
    - Program demographics
    - Course enrollment
    - Student demographics
- Instructional Program Review
  - Course observations
  - Instructor classroom
  - Course manuals review
Funding UTeach

UTeach Program Costs Over 5 Year Start Up

<table>
<thead>
<tr>
<th>Year</th>
<th>PY</th>
<th>YR 1</th>
<th>YR 2</th>
<th>YR 3</th>
<th>YR 4</th>
<th>YR 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs</td>
<td>$250,000</td>
<td>$400,000</td>
<td>$600,000</td>
<td>$1,100,000</td>
<td>$1,900,000</td>
<td>$1,900,000</td>
</tr>
<tr>
<td>Students Enrolled</td>
<td>0</td>
<td>20</td>
<td>150</td>
<td>250</td>
<td>350</td>
<td>450</td>
</tr>
<tr>
<td>Program Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries</td>
<td>$153,125</td>
<td>$398,909</td>
<td>$250,656</td>
<td>$449,905</td>
<td>$1,144,002</td>
<td>$1,395,279</td>
</tr>
<tr>
<td>Administrative Expenses</td>
<td>$31,167</td>
<td>$41,300</td>
<td>$63,947</td>
<td>$41,257</td>
<td>$50,866</td>
<td>$47,950</td>
</tr>
<tr>
<td>Travel Reimbursements</td>
<td>0</td>
<td>$15,800</td>
<td>$25,800</td>
<td>$28,000</td>
<td>$28,500</td>
<td>$28,000</td>
</tr>
<tr>
<td>Mentor Teachers</td>
<td>0</td>
<td>$15,800</td>
<td>$29,875</td>
<td>$31,186</td>
<td>$31,295</td>
<td>$114,316</td>
</tr>
<tr>
<td>Course Equipment and Activities</td>
<td>0</td>
<td>$31,200</td>
<td>$31,000</td>
<td>$30,000</td>
<td>$68,000</td>
<td>$27,000</td>
</tr>
<tr>
<td>Student Benefits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activities</td>
<td>0</td>
<td>$6,800</td>
<td>$6,800</td>
<td>$6,800</td>
<td>$6,800</td>
<td>$6,800</td>
</tr>
<tr>
<td>Internships</td>
<td>0</td>
<td>$27,800</td>
<td>$20,000</td>
<td>$8,800</td>
<td>$12,000</td>
<td>$12,000</td>
</tr>
<tr>
<td>Scholarships</td>
<td>0</td>
<td>$18,800</td>
<td>$40,000</td>
<td>$80,000</td>
<td>$70,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>Incentives</td>
<td>0</td>
<td>$18,800</td>
<td>$6,800</td>
<td>$6,800</td>
<td>$6,800</td>
<td>$6,800</td>
</tr>
<tr>
<td>Indirect Costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5,075</td>
</tr>
</tbody>
</table>

Total Program Expenses: $235,792 | $484,299 | $642,000 | $1,142,800 | $1,923,900 | $1,790,445

Mature UTeach Program Costs by Category

- Salary: 73%
- Indirect: 1%
- Student Benefits: 12%
- Recruitment: 7%
- Mentoring: 6%
- Administrative Expenses: 3%
- Course Equipment and Activities: 2%

UTeach Annual Program Costs

Funding Schedule

- UTeach Replication: 5 Year Costs
  - Grant to University: $1,400,000
  - UTeach Institute Support: $500,000
  - $2,000,000

Total Grant Funding needed for 5-Year Replication

- Grant to University: $1,400,000
- UTeach Institute Support: $500,000
- $2,000,000

*Administrative expenses are not included.
## UTeach Program Costs Over 5 Year Start Up

<table>
<thead>
<tr>
<th></th>
<th>PY</th>
<th>YR 1</th>
<th>YR 2</th>
<th>YR 3</th>
<th>YR 4</th>
<th>YR 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Income</strong></td>
<td>$250,000</td>
<td>$480,000</td>
<td>$865,000</td>
<td>$1,150,000</td>
<td>$1,565,000</td>
<td>$1,800,000</td>
</tr>
<tr>
<td><strong>Students Enrolled</strong></td>
<td>0</td>
<td>70</td>
<td>159</td>
<td>233</td>
<td>300</td>
<td>323</td>
</tr>
<tr>
<td><strong>Program Expenses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries</td>
<td>153,125</td>
<td>306,909</td>
<td>625,636</td>
<td>849,905</td>
<td>1,144,502</td>
<td>1,350,273</td>
</tr>
<tr>
<td>Administrative Expenses</td>
<td>31,667</td>
<td>41,390</td>
<td>53,997</td>
<td>44,257</td>
<td>50,956</td>
<td>47,500</td>
</tr>
<tr>
<td>Tuition Reimbursements</td>
<td>0</td>
<td>15,000</td>
<td>26,500</td>
<td>28,000</td>
<td>28,000</td>
<td>28,000</td>
</tr>
<tr>
<td>Mentor Teachers</td>
<td>0</td>
<td>15,000</td>
<td>29,875</td>
<td>39,138</td>
<td>73,228</td>
<td>114,325</td>
</tr>
<tr>
<td>Course Equipment and Activities</td>
<td>51,000</td>
<td>48,000</td>
<td>14,000</td>
<td>20,000</td>
<td>69,000</td>
<td>27,000</td>
</tr>
<tr>
<td>Student Benefits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activities</td>
<td>0</td>
<td>4,000</td>
<td>4,000</td>
<td>6,000</td>
<td>6,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Internships</td>
<td>0</td>
<td>27,000</td>
<td>60,000</td>
<td>88,500</td>
<td>112,500</td>
<td>121,500</td>
</tr>
<tr>
<td>Scholarships</td>
<td>0</td>
<td>18,000</td>
<td>40,000</td>
<td>59,000</td>
<td>75,000</td>
<td>81,000</td>
</tr>
<tr>
<td>Recruitment</td>
<td>10,000</td>
<td>8,000</td>
<td>8,000</td>
<td>8,000</td>
<td>8,000</td>
<td>8,000</td>
</tr>
<tr>
<td>Induction</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5,375</td>
<td>12,900</td>
</tr>
<tr>
<td>Indirect Costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Program Expenses</strong></td>
<td>$245,792</td>
<td>$483,299</td>
<td>$862,009</td>
<td>$1,142,800</td>
<td>$1,572,560</td>
<td>$1,796,498</td>
</tr>
</tbody>
</table>
Mature UTeach Program Costs by Category

UTeach Annual Program Costs

- Salaries: 75%
- Student Benefits: 12%
- Mentor Teacher Payments: 6%
- Recruitment & Incentives: 2%
- Administrative Expenses: 3%
- Induction: 1%
- Course Equipment and Activities: 1%

Total Costs: 100%
Funding Schedule

<table>
<thead>
<tr>
<th>UTeach Replication: 5 Year Total Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant to University</td>
</tr>
<tr>
<td>UTeach Institute Support</td>
</tr>
<tr>
<td>Minimum Univ investment</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Grant Funding needed for 5-Year Replication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant to University</td>
</tr>
<tr>
<td>UTeach Institute Support*</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

* Additional administrative costs may be required

Pie chart:
- Grant to University: 43%
- Minimum Univ investment: 42%
- UTeach Institute Support: 15%
Funding UTeach

UTeach Program Costs Over 5 Year Start Up

<table>
<thead>
<tr>
<th>Category</th>
<th>FY 1</th>
<th>FY 2</th>
<th>FY 3</th>
<th>FY 4</th>
<th>FY 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>123,571</td>
<td>308,909</td>
<td>25,636</td>
<td>5,949,305</td>
<td>1,144,002</td>
</tr>
<tr>
<td>Administrative Expenses</td>
<td>31,687</td>
<td>41,360</td>
<td>53,387</td>
<td>41,287</td>
<td>50,665</td>
</tr>
<tr>
<td>Tuition Reimbursements</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mentor Teachers</td>
<td>0</td>
<td>15,800</td>
<td>25,490</td>
<td>28,039</td>
<td>26,055</td>
</tr>
<tr>
<td>Course Equipment and Activities</td>
<td>0.500</td>
<td>48,000</td>
<td>14,000</td>
<td>20,000</td>
<td>85,000</td>
</tr>
<tr>
<td>Total Program Expenses</td>
<td>$235,751</td>
<td>$340,209</td>
<td>$460,015</td>
<td>$1,072,000</td>
<td>$1,798,448</td>
</tr>
</tbody>
</table>

Mature UTeach Program Costs by Category

- Course Equipment and Activities: 2%
- Mentor Teacher Payments: 8%
- Recruitment & Invitations: 7%
- Administrative Expenses: 3%
- Induction: 1%
- Student Benefits: 12%

UTeach Annual Program Costs

Salary: 75%

Funding Schedule

UTeach Replication 5 Year Total Costs

- Grant to University: $1,000,000
- UTeach Institute Support: $500,000
- Minimum UTeach Investment: $3,000,000

Total Grant Funding needed for 5-Year Replication

- Grant to University: $1,400,000
- UTeach Institute Support: $500,000
- Minimum UTeach Investment: $3,000,000

Add additional support to be determined.
Implementation Highlights

More Uniform Elements:
- Program Identity
- Cross-College and School District Collaboration
- Active Student Recruitment
- Dedicated Master Teachers
- Curriculum Adoption
- Nature of Student Field Experience

More Variable Elements:
- Degree Plan Elements/Courses
- Student Support
- Induction Support
- Course Instructors
- Number of Field Hours
University of Alabama, Birmingham
PURSUIT A STEM DEGREE?
Try out teaching for FREE!
Earn a STEM degree and a teaching certificate in 4 years.

Find your superpower. TEACH.
Be a part of something amazing. Earn a STEM degree and become a teacher in just four years—with UAB Teach. Visit our site to find out more.

www.uab.edu/teach
Excellence in STEM Teacher Preparation

The UTeach Secondary STEM Teacher Preparation Model

State & National Context

UTeach