FACULTY AND STAFF FOR 2018 UA-NOYCE SUMMER INTERNSHIP

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Noyce 2018
PROGRAM OVERVIEW
What is the Noyce Program?

The National Science Foundation Robert Noyce Teacher Scholarship Program seeks to encourage talented science, technology, engineering, and mathematics (STEM) majors and professionals to become K-12 mathematics and science (including engineering and computer science) teachers.

Who is Robert Noyce?

- Nicknamed the "Mayor of Silicon Valley", Noyce was a co-founder of the Fairchild Semiconductor and Intel.
- He also invented the integrated circuit (microchip), one of the stepping stones along the way to the microprocessors in today's computers.
The University of Alabama Noyce Program Components

1. Noyce Summer Internship Program
2. Noyce Scholarship Program
3. Induction and Mentor Program for Noyce Scholarship Students Upon Completion as New Teachers
4. Recruitment Through Multiple Sources

Noyce Summer Internship Program
The University of Alabama Noyce Program

Summer Scholar Internship Program

1. Purpose: STEM Career overview and orientation with a focus on possible STEM teacher career
2. Held in June for years 2014-2019
3. Requirement: Major in chemistry, physics, or mathematics
4. Year 1 students
5. Year 2 students

Noyce Scholarship Program
The University of Alabama Noyce Program

Noyce Scholarship Program

A. Undergraduate: for Juniors and Seniors – 2 years @ $16,000/year
B. Graduates: for Alternative Certification and Masters Degree – 1 Year @ $17,000
C. Two year teaching in a high needs school for every year of scholarship

Induction and Mentoring Program for Noyce Scholarship Upon Completion as New Teachers
The University of Alabama Noyce Program

Noyce Induction Program

A) Online program to assist in first 2 years of teaching staffed by university faculty and experienced teacher mentors.

B) Paid graduate tuition with the two courses that could apply to Masters or EdS degree program.

C) Personal technology hardware bundle that can be used in your chemistry, physics, or mathematics classroom.
Recruitment

The University of Alabama Noyce Scholars Program

Recruitment Through Multiple Sources

A. Community College Consortium of 12 community Colleges and faculty liaisons
B. University of Alabama STEM departments and faculty
C. STEM Teachers in partner schools
D. Web Media outlets and other outreach groups
E. Noyce scholars, you
UA-Noyce Community Colleges
1. Shelton State
2. Lawson State
3. Jefferson State
4. Gadsden State
5. Calhoun
6. Wallace
7. Wallace State
8. Bevill State
9. Central Alabama
10. Enterprise State
11. Northwest Shoals
12. Southern Union State
13. University of Alabama

UA-Noyce Program
Collaborative Community Colleges

STEM High School Teachers

WHY ARE THEY NEEDED?
Internationally

WHY ARE THEY NEEDED?

Where we are from the top in 2011 PISA (Program for International Student Assessment) Report?

<table>
<thead>
<tr>
<th>Rank</th>
<th>Maths</th>
<th>Sciences</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Shanghai, China</td>
<td>600</td>
<td>Shanghai, China</td>
</tr>
<tr>
<td>2.</td>
<td>Singapore</td>
<td>562</td>
<td>Finland</td>
</tr>
<tr>
<td>3.</td>
<td>Hong Kong, China</td>
<td>555</td>
<td>Hong Kong, China</td>
</tr>
<tr>
<td>4.</td>
<td>South Korea</td>
<td>546</td>
<td>Singapore</td>
</tr>
<tr>
<td>5.</td>
<td>Taiwan</td>
<td>543</td>
<td>Japan</td>
</tr>
<tr>
<td>6.</td>
<td>Finland</td>
<td>541</td>
<td>South Korea</td>
</tr>
<tr>
<td>7.</td>
<td>Liechtenstein</td>
<td>536</td>
<td>New Zealand</td>
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<td>8.</td>
<td>Switzerland</td>
<td>534</td>
<td>Canada</td>
</tr>
<tr>
<td>9.</td>
<td>Japan</td>
<td>529</td>
<td>Estonia</td>
</tr>
<tr>
<td>10.</td>
<td>Canada</td>
<td>527</td>
<td>Australia</td>
</tr>
</tbody>
</table>

We didn’t make the top 10!
500 is the Internat’l Average in Math

Alabama scored 466

Nationally

WHY ARE THEY NEEDED?

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Trends in International Mathematics and Science Study

State Scores on 2011 TIMSS, 8th-grade Math (Ranked by TIMSS 2011 Score)

<table>
<thead>
<tr>
<th>State</th>
<th>TIMSS 2011 Score</th>
<th>First TIMSS Score (Year)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts</td>
<td>561</td>
<td>513 (1995)</td>
<td>+47*</td>
</tr>
<tr>
<td>Minnesota</td>
<td>546</td>
<td>518 (1995)</td>
<td>+28*</td>
</tr>
<tr>
<td>North Carolina</td>
<td>537</td>
<td>495 (1995)</td>
<td>+42*</td>
</tr>
<tr>
<td>Indiana</td>
<td>522</td>
<td>515 (1995)</td>
<td>+7</td>
</tr>
<tr>
<td>Colorado</td>
<td>518</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Connecticut</td>
<td>518</td>
<td>512 (1990)</td>
<td>+5</td>
</tr>
<tr>
<td>Florida</td>
<td>513</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>California</td>
<td>493</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Alabama</td>
<td>466</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

* p < .05

Note: Change statistic may not match scores due to rounding.

Percentage of High School Seniors Who Met College Readiness Benchmarks in 2011

- 52%
- 45%
- 30%

Students are not meeting benchmarks.
High School Students Taught by Teachers with No Major and No Certification in Their Subject Area in 2000

Math: 31%
Biology: 45%
Chemistry: 61%
Physics: 66%
Earth and Space Science: 79%

"The federal government should promote the creation of at least 200 new highly STEM-focused high schools and 800 STEM-focused elementary and middle schools over the next decade."

Statewide

Why are they needed?
Needs for STEM Students in Alabama

1) High technology automotive and aquaculture industries drive Alabama’s economy and require a STEM trained workforce.

2) Lack of certified, qualified teachers statewide, particularly in high needs schools, in areas where the new economy is locating.

3) Number of STEM teachers produced in Alabama is historically low.

Unfilled % of High Needs STEM Teaching Positions in Alabama

Unfilled % of High Needs STEM Teaching Positions in AL Public schools

Source: ALSDE open records data request
What are we looking for in STEM Teachers?

- An ability to empathize with pupils from age 11-18
- Patience and dedication
- A clear vision of the importance of science and mathematics to societal progress
- An in-depth knowledge of math, chemistry, or physics content, and laboratory procedures, as well as the knowledge of how to teach science & math concepts (PCK – Pedagogical Content Knowledge)