

**Noyce Scholarship Program:
Developing STEM Teachers to Support Digitally-Rich Learning
University of Rochester**

Project Description

Overview

The proposed Noyce Scholarship program will focus on preparing a cadre of 26 STEM teachers with an additional specialization in Digitally-Rich Teaching in K-12 Schools to best serve high-need students in today's digital age. This project will build on the experience gained from two prior Noyce Scholarship grants, which prepared a total of 57 STEM teachers for high-need schools, while also adding some new components derived from recent collaborations between the University of Rochester (UR) Warner School of Education and College of Arts, Sciences and Engineering and the two school partners in this project – the East Irondequoit Central School District (Irondequoit), a high-need suburban district that is providing an iPad to each of its students as part of a comprehensive digital conversion reform effort, and East High School (East), an urban secondary school that is still part of the Rochester City School District but is run by the UR as its Educational Partnership Organization (consistent with recent New York State legislation).

STEM teachers completing this program will undertake the same rigorous 15-month graduate teacher preparation program that has proven effective for previous Noyce scholars. In addition, the new Noyce Scholars prepared through this project will also complete the coursework and field experiences recently approved by the New York State Education Department (NYSED) to obtain an Advanced Certificate in Digitally-Rich Teaching in K-12 Schools – a new certificate designed to prepare K-12 teachers to take advantage of digital technologies to enhance their students' learning opportunities. All Noyce Scholars will conduct one of their student teaching experiences in Irondequoit, to experience teaching in a digitally-rich environment. All Noyce Scholars will also conduct another student teaching experiences in East, to experience teaching in an urban setting that is adopting several progressive practices, including the use of innovative research-based STEM curricula.

Each Noyce Scholar will receive a scholarship to fully cover their tuition costs – \$30,000 from grant funds (covering about 50%) and the remainder offered by the Warner School in-kind. Each Noyce Scholar commits to the grant-mandated service requirement of teaching for a minimum of 2 years in high-need schools; Noyce Scholars who do not complete their service requirements within 4 years after completing the program will need to pay back the \$30,000 grant-funded component of their scholarship.

Commitments required of and made by the Warner School:

- Mainly responsible for recruiting and selection of Noyce Scholars;
- Ultimately responsible for delivering the teacher preparation program, and the Digitally-Rich Teaching certificate;
- Offering in-kind tuition waiver to cover tuition costs not covered by the \$30,000 scholarship;
- Monitoring program and service requirement completion by Noyce Scholars, and manage repayment when needed;
- Responsible for the execution of the external evaluation and for reporting to NSF.

Commitments required of and made by the College of Arts, Sciences and Engineering:

- Identifying a faculty member who will act as co-PI for the project (including serving on the project's leadership team) and liaison with the College (which will include proactively identifying other STEM faculty in the College that could enrich the Noyce Scholars' experience, and connecting them with the project's leadership team as needed);

- Actively supporting the recruiting of Noyce Scholars, especially among UR STEM undergraduates;
- Contributing to the delivery of the teacher preparation program by providing expert consulting on STEM content as needed, occasional guest lectures and lab experiences, and being otherwise available to support and/or enrich the experience of individual Noyce Scholars;
- Providing on-going feedback about the program and suggestions for improvements;
- Contribute information as needed for program evaluation and reporting.

NOTE: No in-kind contributions are required.

Commitments required of East Irondequoit:

- Ensure one student teaching placement to all Noyce Scholars (6-8 each year), with cooperating teachers that can support their digitally-rich experiences;
- Enable other field experiences as required to complete the Digitally-Rich Teaching Practicum;
- Provide feedback about the program (especially the new Certificate) that will allow Warner to continue to improve it;
- Interview Noyce graduates that apply for STEM teaching positions in the district;
- Contribute information as needed for program evaluation and reporting.

NOTE: No in-kind contributions are required.

Commitments required of East EPO:

- Ensure a student teaching placement to all Noyce Scholars (6-8 each year);
- Ensure that the student teaching experience will allow Noyce Scholars to complete all required activities;
- Provide feedback about the program that will allow Warner to continue to improve it;
- Interview Noyce graduates that apply for STEM teaching positions at East;
- Contribute information as needed for program evaluation and reporting.

NOTE: No in-kind contributions are required.

Commitments required of each of Noyce Scholar:

- Complete all requirements of the Warner teacher preparation program AND all requirements of the new Certificate in Digitally-Rich Teaching in K-12 Schools; Noyce Scholars who do not complete either of these requirements will be expected to repay the grant-funded scholarship they received up to that point in full.
- Continue to provide the information required by the grant and the program evaluation plan, including information about their work status each year until they complete their service requirement;
- Complete the service requirement of two years of full-time teaching in high need schools after graduation; if for whatever reason a Noyce Scholar cannot complete this requirement by the end of 4 years after graduation, s/he will have to pay back the \$30,000 scholarship received from NSF (pro-rated based on the time they were able to teach in high-need schools).

Additional information about the program

**Indicates requirements specific to the Advanced Certificate in Digitally-Rich Teaching; all courses are 3 credits unless otherwise specified*

The teacher preparation program all Noyce scholars will take will be characterized by:

- ***Focus on STEM-specific methods courses:*** Program includes 3 courses specific to math or science teaching and learning.

- **Preparing to teach high-need students:** Program includes required courses on diversity, youth culture, teaching students with disabilities, and serving English Language Learners in content classrooms.
- **Focus on technology-rich teaching:** Program includes two courses on leveraging technology to enhance student learning.
- **Rich internships, integrated with coursework:** All Noyce Scholars will engage in at least 100 hours of field experiences, two student teaching experiences (for a total of 12 weeks) in two different contexts, and a more specialized Digitally-Rich Teaching Practicum, all taking place concurrently with key courses so as to provide opportunities for field-based assignments and shared reflections to make the most of their experiences in the field.

Program schedule:

Summer 1:

- Disability & School
- Integrating Science & Literacy (*science specialists only*)
- *Integrating Science/Math & Technology
- Race, Class, Gender & Disability in American Education

Fall:

- Topics in Teaching & Schooling 1 (1 credit)
- Literacy Learning as Social Practice
- First Math/Science Methods Course
- *Digitally-Rich Teaching & Learning in K-12 Schools
- *Digitally-Rich Teaching & Learning Practicum 1 (1 credit)
- Field experiences (2 credits)

Spring:

- Topics in Teaching & Schooling 2 (2 credits)
- Second Math/Science Methods Course
- *Digitally-Rich Teaching & Learning Practicum 2 (2 credits)
- First Student Teaching (3 credits)
- Second Student Teaching (4 credits)

Summer 2:

- Adolescent Development and Youth Culture
- Teaching English Language Learners in Content Classrooms