DREAM STEM-Driving Research, Entrepreneurship, and Academics through Mastering STEM

The REU Program in Computing, Science & Mathematics

Application materials for the 2014 REU are now posted! (See How to Apply in the xxx.)

Overview of Program

Imagine spending a summer in a beautiful, quiet, urban setting in which the days are warm it stays light until well after 9 p.m., and where you are 15 minutes from the Durham Ball Park and Tobacco district, the Sarah P. Duke Gardens, 20 minutes from the Museum of Life and Science Durham, NC (www.lifeandscience.org), the Brightleaf Square, and also only 20 minutes from the world famous Research Triangle Park. Now imagine that, in this fantastic place, you get to spend your time engaged in honest, exciting computing, mathematical and science research. This is the environment in which students have been active in recent years in the NCCU REU program.

Each summer the Mathematics and Science departments at North Carolina Central University invite students from across the country to participate in the REU program. Students from as far north as Minnesota have participated in our program. We typically receive several highly qualified applicants, so the process is quite competitive. Past REU participants have gone on to graduate programs at Yale, Duke, NCState, UNC-Chapel Hill, Cornell, and elsewhere. Other alumni have accepted jobs in government and industry, including positions at the National Security Agency, Nvidia, and the National Geospatial-Intelligence Agency. The first summer program took place in 2005.

A Typical Week

We begin each Monday with breakfast provided by the xxxxx. Throughout the week, teams of students work on their projects, meeting every weekday with faculty mentors. Approximately every other week, each team gives a 20 to 30 minute presentation about their research. At the end of the week, there is "Group Fun" activity, which can be a movie, a minor league baseball game, bowling, or something else, depending on the students' interests. At the end of the week, a guest faculty speaker gives a seminar talk on his or her research.

Undergraduate student participants must be citizens or permanent residents of the United States or its possessions.
Communication Is Important

An important component of any professional work is the dissemination of that work. During the program, students give several talks on their research. Students also write weekly reports on their accomplishments, which are eventually combined to create a final technical report. This final report can serve as a starting point for creating a manuscript to be submitted to a conference or journal.

Presentations of results continue past the conclusion of the xxxx-week REU program???

Summer REU Programs

Even as undergraduates, our students are encouraged to explore research. As they get valuable experience—in some cases paid—they gain insight into their potential to pursue serious independent research, gain valuable research skills that make them highly competitive for jobs, internships, and/or advanced studies.

Explore REU in:

Biology

- Director:
- Phone:
- Website:
- Description:

Chemistry

- Director:
- Phone:
- Website:
- Description:

Environmental, Earth & Geospatial Sciences

- Director:
- Phone:
- Website:
- Description:
Mathematics

Algebraic Methods in Computational Biology (select this project)

- **Director:**
- **Phone:**
- **Website:**
- **Description:** Among the sciences, biology is unique in the subtlety of its mathematical foundations. This program focuses on recent applications of algebraic geometry to problems in protein folding and phylogenetic trees. Our main goal is to impart enough background to students so they have the freedom to be as algebraic and/or biological as they want to be.

Matrix Analysis and Wavelet Theory (select this project)

- **Director:**
- **Phone:**
- **Website:**
- **Description:** Wavelets as powerful tools used in signal analysis, is the subject of theoretical study because of their wide applications. Our research area involves the theory behind wavelets, although some of our students in the past have worked on projects involving the use of wavelets in signal filtering and signal compression.

Physics

- **Director:**
- **Phone:**
- **Website:**
- **Description:**

Computing Science

Robotics & Intelligent Systems (select this project)

- **Director:**
- **Phone:**
- **Website:**
- **Description:** Participant in an REU experience with the Cooperative Autonomous Mobile Robots undertake activities in Robot Localization, Wireless Sensor Networks, Computer Vision, Graphics and Image Processing. A program thematic basis is the development of intelligent sensors that process, store, and learn from data so as to improve the ability to gather information over time. Students will therefore contribute to the development of intelligent sensor systems that process, store, and learn from data so as to improve their ability to gather information over
time. Students will also experience first hand the design and construction of a surface vehicle to enable and contribute to unprecedented observations of environmental and ecological processes, and more effective and reliable use of sensors in defense and national security, for example.
The REU Program in Computing, Science & Mathematics

Research Experiences for Undergraduates

Participants are invited to participate in a collaborative and interdisciplinary activity for an exciting Research Experience for Undergraduates (REU) program. Outstanding undergraduates will participate in a xxx-week summer program designed to provide unique research experiences, professional development opportunities, and increased awareness of mathematics, computation and science. Each student will participate in an innovative research project that probes fundamental aspects of experimental and/or theoretical undertaking under the guidance of a faculty and a graduate student mentor. Each REU project is designed to involve the student in all aspects of research, from project planning and experimental design to data analysis and presentation.

When to Apply

We will begin accepting applications in early January, 2014.

Before you apply you will need to:

- Prepare your resume and unofficial transcript.
- Select your top three from the projects listed below
- Write a one- to two-page double spaced essay answering the question: “Why are you interested in an REU in focused on one of the topics you have selected?” Please share any information about your prior research experience, if any, as part of your response.

Follow this link to access the DREAM-STEM REU Application Form.

After you apply you will need to:

- Have two recommendations sent to us (download instructions to give to your references)
- All materials must be received by March 1, 2014.
- If you have any questions, please contact us by e-mail: cgrady@nccu.edu

Recommendations should be:

- Emailed to: cgrady@nccu.edu OR
- Mailed to:
  Attn: Clarrisa Grady
Stipend Includes

- xxx weeks housing on North Carolina Central University's campus
- $xxxx stipend
- Up to $xxxxx towards travel costs

Equal Opportunity Statement

North Carolina Central University is committed to affirmative action and fair employment. Whether in the classroom, or elsewhere on or off campus, we believe in giving everyone the opportunity to succeed. Our commitment to principles of fairness and respect for all helps create a climate that is favorable to the free and open exchange of ideas and reinforces our knowledge that our differences are a source of strength, which help foster new opportunities in education and research.

Eligibility

Have you applied to NCCU?

☐ Yes  ☐ No (Students entering the freshman year or completing the AS degree will be given preference)

All applicants must be United States citizens or permanent residents and have health insurance coverage.

Relevant Dates (Summer Program)

- Students arrive: May xxxxx
- Orientation: May xxx
- Ends: Aug xxx

Research Opportunities for 2014
Apply for the DREAM-STEM REU

As a federal contractor and recipient of federal funds, North Carolina Central University is subject to laws and regulations set forth by the federal government to address discrimination in employment decisions on the basis of race, color, religion, sex, age, sexual orientation, disability, national origin, or veteran status.

Fill in the required fields:

- Full Name: *
- Email: *
- Phone Number: *
- Current College or University: *
- Academic Year You Are Entering: *
  - Sophomore
  - Junior
  - Senior
- Academic Major: *
- Academic Minor: 
- Citizenship: *
  - United States Citizen
  - United States Legal Resident
- Health Insurance: *
  - I will have health insurance during the REU program
  - I will NOT have health insurance during the REU program
- What is your gender (for housing purposes):
  - Male
  - Female

Resume *required:
Please attach your resume with the file named "LastName_Resume".
Prefered formats: .doc, .docx, .pdf Also acceptable: .txt, .rtf

Essay *required:

One page double spaced essay answering the question: Why are you interested in an REU in xxxxxx?
Please name the file "LastName_Essay".
Prefered formats: .doc, .docx, .pdf Also acceptable: .txt, .rtf

Transcript *required:

Please upload an unofficial transcript with the file named "LastName_Transcript".
Prefered formats: .pdf Also acceptable: .doc, .txt, .rtf, .gif, .jpg, .tif

Projects of Interest (choose three): *
(You may explore link for description of the project)

- [ ] Robotics & Intelligent Systems
- [ ] Algebraic Methods in Computational Biology
- [x] xxxxxxxxxxxxxxx
- [x] xxxxxxxxxxxxxxx
- [ ] Bioinspired Features to Age Estimation/Gender Recognition; Age estimation Gender and Race
- [ ] Matrix Analysis and Wavelet Theory
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
Contact Information

If you have any questions about the REU program or the application process, please contact xxxxxxxxxx at: xxxx@nccu.edu

Why DREAM-STEM REU?

Be an important part of our research team.

Make new friends from all over the country.
Have the opportunity to get specialized equipment training in cutting edge facilities.

Be a part of Innovation and Entrepreneurship

List of activities