Recruiting Students and Faculty Mentors

Duke’s NAE Grand Challenge Scholars Program in the Pratt School of Engineering

Martha Absher, Associate Dean, Education and Outreach

The first class of NAE Grand Challenge Scholars- Class of 2010
The NAE Grand Challenge Scholars Approach at Duke Engineering

Face the Challenge!

Awareness and Involvement begins at Freshman Orientation

Students build portfolios from freshman year onward

Junior year is Gateway to formal acceptance into GCSP via application

Leveraging of Existing Program Tracks
Each Track provides plan to meet requirements

Eric Thorne in Uganda
Complete Portfolio requires:

The Two Required In-Depth Components:
- Research/Practicum component
- Interdisciplinary component

One Medium-Depth Component:
- Either Global, Service, or Entrepreneurship
  
  Equivalent to semester- or summer-long experience, or more

Two Minimum-Depth Components
- Either Global, Service, or Entrepreneurship
  
  Equivalent to semester or less extracurricular experience

Research in Osteoarthritis: Chondrogenesis from induced pluripotent stem cells and characterization of regenerative capabilities

Entrepreneurial: Student-created venture capitalist club

Global: Water pump project in Uganda

Service: Bridge design & construction in Bolivia
Involving students in the NAE Grand Challenge Scholars at Duke Engineering

Pre-Matriculation through Sophomore Year

**Pre-Matriculation** *(getting on the radar)*

- Interviews
- Recruitment material
- Tours & Invited campus visits

**Freshman Orientation** *(raising awareness)*

- Introduction to the GCS Program
- Activities fair booth and sign-up

**Freshman and Sophomore Years** *(portfolio building)*

- GCS Seminars
- GCS presence in classes (Intro Engineering 10; major courses, new curriculum)
- Meetings with Dean Absher
- Clubs and Activities tracks (EWB, EWH, CERC)
- Special Programs (Pratt Fellows, Smart Home Fellows, IHP)

Tricia Lowe: DukeEngage in Bolivia
Involving students in the NAE Grand Challenge Scholars at Duke Engineering

Junior Year: The Gateway Year

Information Sessions
Recruitment Seminars
In-Class Presentations
Faculty recruitment
Application for formal admittance
Present portfolios of the 5 components
Propose plans
Link with GCS Advisor
Develop budget (up to $5000)

Selection Committee Decisions
New GC Scholars inducted 2nd semester junior year
Intense research and practicum work begin

Tricia Lowe in the lab
Involving students in the NAE Grand Challenge Scholars at Duke Engineering

Senior Year: The Completion

Summer crucial

Senior year focus on research & completion

Presentations of Portfolios Donor Involvement

Formal Thesis completion & Thesis approval

NAE Grand Challenge Scholars Program designation on Transcript
Developing Faculty Buy-in

Face the Challenge!

Dean Tom Katsooleas one of 3 Founding Deans

Top-Down support and involvement

All Departmental Chairs committed to Program

Faculty involvement in program creation—Founding Committee for Duke GSCP had faculty members from:
  - All Departments (DUS)
  - Each Program Track
  - Clubs and Organizations
  - Special Duke Resources

Tom, Tom, Tom!

Tom Katsooleas (Duke), Richard Miller (Olin), Yannis Yortson (USC)
Obstacles, Strategies, and Best Practices

Face the Challenge!

Biggest Obstacle: Faculty TIME and Resources Limited
   Fear Factor #1 TIME: Faculty nervous breakdowns! Rebellion!
   Fear Factor #2 Resources: Labs crowded, drained. Grumpy faculty at DUKE!

Strategy: Minimize the bad and maximize the good
   Fear Factor Solution #1: Leverage proven techniques in successful program!
      Point out 100% survival rate. They like it! They Love It!

   Fear Factor Solution #2: Point out advantages to faculty: great student
      research & resources, leverage for grants and funding

Best Practices: Created environment supportive of undergraduate research involvement
   Pratt Fellows Program– 12 years, Fellows 12 to 110+ per year
   Outreach Programs: 20+ years, over 90% underrepresented

Best Practices: Support grant efforts via educational and outreach program
   development and assistance

Best Practices: Total administrative support lets faculty focus on research/projects

Best Practices: Utilize POPS (Professors of the Practice) AND Tenure Track Faculty
Face the Challenge!

Continuing to Support Faculty Mentors

Dean’s office support

Financial support for Scholars’ efforts via generous donors:

J. Stephen and Susan G. Simon
Stavros Niarchos Foundation

Strong administrative support from Duke GCSP Program Structure

Goal to minimize faculty frustration and red tape and maximize the fun parts
Summary

The NAE GCSP at Duke has graduated 21 GC Scholars

GC Scholars have included a Rhodes Scholar, a Fulbright Scholar, NSF Graduate Research Fellows, and many doctoral scholarships

Duke Engineering now has its THIRD class of Grand Challenge Scholars actively completing the Program

Duke GCSP Class of 2012 Program has 13 GC Scholars

Duke’s GCSP combines new creative efforts with leveraging ongoing programs that enable students

Funding provided by generous donations from: J. Stephen and Susan G. Simon Stavros Niarchos Foundation

Anna Brown, 2011 GC Scholar, BME Major Plans: Oncology research at Cambridge, then medical school