Graduates Linked with Undergraduates in Engineering (GLUE)

Mrs. Ana M Dison, Women in Engineering Program-Cockrell School of Engineering-UT Austin

Ana Dison is the Assistant Director in the Women in Engineering Program and coordinates all current student programming including the First Year Initiative, Kinsolving Learning Community, Leadership Seminar, Graduates Linked with Undergraduates in Engineering (GLUE) research program, the Peer Assistance Leader (PAL) program and the Women In the Second year of Engineering (WISE) program. She typically teaches 3-4 classes a semester and is currently teaching in the newly created Ramshorn Scholars Program, the WEP Leadership Seminar and the GLUE undergraduate research seminar. Ana supervises full and part-time staff and oversees the business and personnel operations of the office. She has been with the WEP Office since 2006.
Established Spring, 2003

Graduates Linked with Undergraduates in Engineering®
Overview

• History
• Description & Purpose
• Format & Structure
• Programmatic Timeline
• Course Content & Deliverables

• Managing Expectations
• Student Learning Outcomes
• Testimonials & Data
• Program Challenges
• Questions
History

- Established in spring, 2003
- One cohort/year 2003-2013
- Two cohorts/year 2013-2018
- 19 cohorts total
Description

- 2\textsuperscript{nd} & 3\textsuperscript{rd} year students
- safe, low stress environment
- first research experience
- introductory experience
- graduate student volunteers as mentors
- encourage underrepresented students to consider engineering graduate study
Description

• use engineering skills to address real-world problems
• develop hypotheses, collect and interpret data
• communicate results to an interdisciplinary audience
• research opportunities in academia and industry from variety of perspectives
Purpose

- retain 2\textsuperscript{nd} & 3\textsuperscript{rd} year female students
- hands-on experience
- encourage underrepresented students to consider engineering graduate study
- provide grad mentors with teaching & mentoring opportunities
Format & Structure

• Offered fall & spring semesters
• Limited enrollment to about 24 pairs per semester
• Enrollment in weekly credit based seminar
Format & Structure

- Undergraduate students are expected to work on AVERAGE 5 hours per week with their graduate student
- Weekly seminar (1.5 hours per week)
- Individual research hours are TBA
Programmatic Timeline

Delivery
- Training
- Teaching

Matching
- Acceptance
- Waitlist

Applications
- Undergrad
- Graduate Mentors
Programmatic Timeline - Applications

• Applications collected concurrently
• Grad projects info needed for matching
• Online process for both
• Secondary info session for undergrads
• Might need several rounds of grad mentor recruitment
Programmatic Timeline - Matching

- More of an art
- Distribution of majors
- Mentors dictate majors
- Personality matching
- Location (off campus research park)
- Returning mentors
Programmatic Timeline - Waitlist

• Auto waitlist
• Personnel changes – mentor & UG’s
• Internships
• Class schedule changes
• Other research opportunities
Programmatic Timeline - Training

- First Meeting Worksheet
- Background reading
- Mentor training 1\textsuperscript{st} week of semester
Programmatic Timeline - Teaching

Canvas class management system
- Weekly attendance required
- Group Presentation – What is an REU?
- Project Presentations
  - Beginning of the semester – introduction of project
  - End of semester – final presentation
- Research Poster
- Faculty Interview
- Reflective Questions
- Final Paper
Managing Expectations

• Introductory program – not curing cancer
• Many different forms/types/settings for research work
• Important to be flexible & open to the experience
Student Learning Outcomes

- Teamwork
- Self-confidence
- Social interaction
- Communication Skills
- Time Management
- Flexibility
- Presentation Skills
"All in all, I really had a great experience with GLUE. I felt that I got lucky in a lot of regards. I loved my project, I had a great mentor, and I got to present in class before the poster competition. But even if I hadn’t gotten so lucky, this class still would have been invaluable to me. It helped me to get hands-on research experience in a really structured and guided way. I now feel comfortable enough to be able to go on in other research roles and take on a bit more responsibility. I never would have applied for an REU or talked to professors about working in their labs if I hadn’t gone through GLUE – I think I would have felt too intimidated. But now I know that they should want me; I made it through an award-winning program! I feel a lot more confident in my skills now, and am looking forward to applying the things I’ve learned in GLUE in the future."
Testimonials & Data
Participants by Gender, Spring 2003-Spring 2018

- Female: 434
- Male: 48
Ethnicity by Gender

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<thead>
<tr>
<th>Ethnicity</th>
<th>Female</th>
<th>Male</th>
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<tbody>
<tr>
<td>White</td>
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<td>Hispanic</td>
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<tr>
<td>Foreign</td>
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<td>7</td>
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</tbody>
</table>

The chart shows the distribution of ethnicity among females and males.
Program Challenges

• Capacity
• Managing expectations of undergraduates
• Grad mentor recruitment
• Grad mentor understanding
• Funding
Questions