

# **Stage I DIG Report – Diversity and Inclusion in Elon Engineering**

Dr. Richard Blackmon  
Dr. Sirena Hargrove-Leak

## **Project Overview**

Efforts to promote diversity and inclusion over the past decade have had a range of success across professions. Unfortunately, Engineering lags behind other fields. With Elon initiating the four-year Engineering degree this year, we are in a great position to shape our program to be inclusive and diverse. We therefore sought a Stage I Diversity and Inclusion Grant (DIG) to begin the process of integrating diversity and inclusion initiatives into our program.

Drs. Blackmon and Hargrove-Leak applied for DIG initially to collect data on the diversity of our program and to determine the perceptions of inclusion among our students. Since proven methods already exist and work, reviewers recommended that we proceed with implementing ideas this semester. We took the reviewer's recommendation and spent Summer 2019 investigating methods of promoting diversity and inclusion in our program. Our investigation led us to three major plans of action. Our first aim was to promote student extracurricular involvement in diverse societies such as the Society of Women Engineers. The second aim was to promote visibility of diverse populations through our actions and lessons. Our third aim was to spark classroom discussion on diversity and inclusion in Engineering in order to set the tone for students moving forward.

We did this in tandem with some data collection. Both Blackmon and Hargrove-Leak included diversity and inclusion activities in their courses. Our initiatives were assessed in part from these activities – with Blackmon's students being assessed through a quiz and midterm exam and Hargrove-Leak's students assessed through an assignment. Additionally, we gave a survey on diversity and inclusion at the end of the semester. Our original plans included the collection of student reflections at the end of each month. However, the initial feedback from students reshaped the way we thought about diversity and inclusion, leading to an evolution of plans throughout the Fall semester and a framework for the Stage II DIG.

As part of our efforts to promote diversity and inclusion in Engineering, both Blackmon and Hargrove-Leak are committed to continuous self-improvement and strive to be aware of current issues, seek conversations with experts, and attend conferences on diversity. Before starting Stage I, Blackmon became an officially trained Elon LGBTQIA Ally. Blackmon also attended the Forum on Broadening Participation in Engineering at NC State. Hargrove-Leak attended a Book Talk led by Debby Irving, author of *Waking Up White* in the Fall and the NCAIS Diversity and Inclusion Conference in the Spring. Our self-improvement initiatives are ongoing. Recently, Blackmon attended Elon's campus conversation on "Confronting Race and Racism in Elon's History" and is scheduled to meet with the Director of the Gender and LGBTQIA Center at the end of the Spring 2019 semester. Hargrove-Leak is exploring the resources available on Debby Irving's website looking for tools to use to promote diversity and inclusion. As we continue to learn about issues surrounding diversity and inclusion, and other underlying factors, such as rates of first-generation students and low-income students among our minority student population, our plans for improvement in the Engineering program evolve and grow.

In this report, we discuss the course activities conducted in EGR 206 and 121, the results of those activities including our personal perceptions, the student surveys conducted at the end of Fall 2018 and those preliminary results, and plans for entering Stage II of the DIG.

## **Promoting Extracurricular Involvement and Increasing Visibility**

Promoting extracurricular involvement by students was an aim intended to help our underrepresented students obtain resources that are not currently advertised to them, and to give them a community they may have not been able to find yet at Elon. Increasing visibility is intended to communicate to our students that they are welcomed and accepted in Elon Engineering. The two aims are entangled, and therefore discussed together in this section.

To promote extracurricular involvement, Blackmon included information on demographic-based Engineering societies, such as the Society of Women Engineers, in his lessons. This was presented to students in two contexts – first during a lesson on career development and networking, then again during the lesson on improving Engineering solutions through diversity. It was clear that most of the students had not heard of these societies, so putting them on their radar was alone an improvement. In addition to presenting these societies, Blackmon shared his experiences working with The National Organization for Gay and Lesbian Scientists and Technical Professionals to review undergraduate scholarships. This is one example of how our efforts to promote extra-curricular involvement also improved visibility within the program. Blackmon also met with the student organization Elon Engineers to discuss their promotion of Engineering societies for underrepresented populations. The officers seemed eager to run with the ideas we generated, and are currently in the process of developing action plans. Unfortunately, we currently do not have evidence that students are taking advantage of these societies, and plan to address this in the Stage II DIG.

In addition to highlighting demographic-based societies to our students, we aimed to increase visibility of our efforts to students. Blackmon, for example, communicates to our LGBTQIA students that they are free to express themselves by displaying his ally training certificate in his office and including his pronouns in correspondence to students. Hargrove-Leak has drafted a Diversity and Inclusion statement to go on a new Diversity and Inclusion webpage for Elon Engineering, which reads:

“The Engineering Program embraces diversity and fosters inclusive practices to enrich personal interactions and to enhance the quality, effectiveness, and reach of our work. We believe that students, faculty, and staff should have equal opportunities to pursue and advance toward their professional goals without experiencing marginalization or exclusion due to their differences. Such differences include those that are seen and unseen, such as, but is definitely not limited to, age, belief, disability status, ethnicity, gender, gender identity, and socio-economic status. We also believe that it is our duty as engineering educators to prepare students to serve society. Society itself is inclusive of all; therefore, our pedagogies must also embrace and encourage diverse intellectual, cultural, and social experiences to prepare future engineers to address global challenges.”

During the Stage II DIG, more direct longitudinal measures will be developed to find the impact of our efforts on recruitment and attrition of underrepresented students.

## **In-class Assignments and Assessment**

Both Blackmon and Hargrove-Leak implemented course activities to highlight the lack of diversity in Engineering and to impress upon students the need for inclusive practices to promote diversity. Blackmon implemented an activity in EGR 121 Grand Challenges in Engineering I. Hargrove-Leak implemented an activity in EGR 206 Engineering Mechanics: Statics.

### ***EGR 121 Course Activity***

Blackmon implemented a course activity with the aim of demonstrating that diverse representation in Engineering is more than pushing for equality – it is also vital to finding the best Engineering solutions. This was demonstrated with the example of a toilet seat design. The original toilet seat was a fully connected oval/circle. With more women using common-use facilities, there was a need for a more sanitary design. The redesigned U-shaped seat allows people to be hygienic without

contacting the seat. Blackmon then presented students an article on the importance of diversity in Engineering using the Think-Pair-Share model to encourage student conversations. Students were encouraged to discuss how different backgrounds and experiences enabled people to approach a design problem from different perspectives, which leads to different and unique solutions. The students were then asked to brainstorm ways that their attributes and experiences might give them a unique perspective for solving Engineering problems. Once we established the need for diverse representation in Engineering, we discussed the need for inclusive practices, and how their generation can affect change in the current Engineering culture.

### ***EGR 206 Course Activity***

In recent years, Dr. Hargrove-Leak has become keenly aware of the lack of diversity in the engineering mechanics textbook. The images primarily feature white males and many athletic-themed images. In a first attempt at bringing this to the forefront, students enrolled in EGR 206 Engineering Mechanics: Statics in Fall 2018 were asked to consider the societal context of engineering mechanics by designing a textbook-style problem reflective of some aspect of their personal identity. The project was assigned about two thirds of the way through the class to ensure that they had plenty of exposure to the problems in the textbook used in the class. The exact assignment is displayed in Appendix B. An example was provided in the assignment description. In-class discussion of the project led us to agree that submissions would be accompanied by a brief narrative explaining what aspect of personal identity is featured. Beyond this one project assignment, diversity and inclusion were not discussed in class.

### **End-of-semester Surveys**

#### ***Overview***

At the end of the semester, we gave a survey to students enrolled in EGR 121 and EGR 206 (Appendix C). The survey was intended to capture student perspectives of diversity and inclusion in the classroom, program, and university. This was also a secondary assessment of the activities we gave in the classroom. For example, students were asked if they knew how inclusive practices promoted diversity, which was one of the main objectives of the activity Blackmon executed. The Internal Review Board for research on human subjects approved the survey. Neither Blackmon nor Hargrove-Leak administered surveys to their own students, all responses were anonymous, and the written results were transcribed to an Excel worksheet by a third party.

#### ***Results***

The survey results are still being examined for three main things, 1) Whether or not our students perceive our courses, program, and university as diverse and inclusive; 2) the specific responses to questions that most directly assessed the students' understanding of classroom activities; and 3) contradicting responses from students in an effort to reveal noise in the data. The responses are being considered both as a whole, within each section, and within each course. For Stage I of the DIG, we began looking at responses to each question. The more detailed analysis of this data will occur in Summer 2019, and will be used to create the framework for Stage II DIG.

### **Personal Reflections**

Below are personal reflections from Drs. Hargrove-Leak and Blackmon.

#### ***Blackmon Reflections***

My approach to promoting diversity and inclusion has evolved considerably over the past year. It is clear to me that even our attempts to check the pulse of inclusion in Elon Engineering has an effect on student perceptions. This reinforced to me the need to be deliberate in our promotion of diversity

and inclusion, and to be mindful of potentially negative perceptions from our students and ready to address those. Thankfully, I have discovered there are local workshops that instruct on addressing this, and plan to attend one.

I also realize that actively addressing other issues among our students can lead to increased diversity and inclusion. For example, we have stellar students across the demographic spectrum in our program. We also have struggling students across the demographic spectrum. Currently, Elon Engineering does not provide a formal platform to connect these students. We are therefore considering a peer mentoring program that would connect these students. This will help both with getting our struggling students another tool to help them succeed, and to increase the visibility of our minority students in the program while promoting inclusive practices.

### ***Hargrove-Leak Reflections***

Overall, the results indicate that we must do more to communicate our goals related to diversity and inclusion and to encourage our students to adopt inclusive practices. We believe that some of the survey questions are vague and may be interpreted differently; therefore, we may rewrite them. There are great resources available on Debby Irving's website that may be useful as I explore ways to introduce the diversity and inclusion project for students in EGR 206. Last, we originally wanted to host periodic focus groups to allow students to speak more candidly about their experiences. It was suggested that we consider asking someone in CATL or a trained student to lead those groups and I am hopeful that we can make that a reality.

**The Importance of Diversity in Engineering (Abbreviated by R. Blackmon)**

WM. A. WULF

*President*

*National Academy of Engineering*

I want to share some thoughts with you from a talk I gave to the NAE Annual Meeting about two years ago, in which I tried to explain why I believe we should be deeply concerned about diversity in the engineering workforce. I feel very deeply about this issue because I believe diversity in the engineering workforce is an absolute necessity. It's not just that it would be *nice* if we were more diverse; the issue is much more important than that. I believe it is an *absolute necessity*.

Many people talk about the need for diversity as an issue of equity, in terms of fairness, and that is a potent argument. Americans are very sensitive to issues of equity and fairness, so the argument resonates with many people. A second argument for diversity has to do with numbers, the fact that white males are becoming a minority in the population of the United States and that, unless we include more women and underrepresented minorities in the engineering workforce, we are simply not going to have enough engineers to continue to enjoy the lifestyle we have enjoyed for the last century or so. This, too, is a potent argument, but it is not the one I am going to present today.

My argument is essentially that the *quality* of engineering is affected by diversity (or the lack of it). To support that argument, I am going to share with you some very deep beliefs about the nature of engineering, some of which run counter to stereotypes of engineers and engineering. The argument in a nutshell hinges on the notion that engineering is a profoundly creative profession—not the stereotype, I know, but something I believe deeply. The psychological literature tells us that creativity is not something that just happens. It is the result of making unexpected connections between things we already know. Hence, creativity depends on our life experiences. Without diversity, the life experiences a consequence, we may not find the best engineering solution. We may not find the *elegant* engineering solution.

As a consequence of a lack of diversity, we pay an opportunity cost, a cost in designs not thought of, in solutions not produced. Opportunity costs are very real but also very hard to measure. The stereotype of engineering in this country does not include a notion of creativity. According to the stereotype, engineers are dull; they are nerds. Unfortunately, I think that is part of the reason we have not achieved the same level of diversity in our profession as we have in the population. We need to break this negative feedback cycle. When I speak of diversity, I mean the kind of inclusion you probably thought of instantly, that is, appropriate representation of women and underrepresented minorities. But my idea of diversity also includes the notion of *individual diversity*, that is, the breadth of experience of a single individual.

When I made this argument to the NAE members a couple of years ago, I had just seen some numbers about engineering enrollments. Undergraduate enrollment in engineering has been dropping since the mid-1980s, about 20 percent from that peak, and down about 3 percent since 1992. Graduate enrollment has been growing, but largely because of an influx of non-U.S. students. In fact, the U.S. student component of undergraduate enrollment is dropping, in spite of the fact that starting salaries for engineering graduates are 50 to 100 percent higher than those of students graduating with bachelor of arts degrees.

My friends who are economists keep telling me that the disparity in salaries will eventually motivate more students to go into engineering. But that is not what the data show. We need to stand back and ask ourselves why, in a society that is *so* dependent on technology, in fact, in some ways is *addicted* to technological change, and with 50 to 100 percent disparities in salaries, engineering is not an *attractive* discipline. Specifically, we must ask why it isn't attractive to underrepresented minorities and women. Traditionally, engineering was thought of as a way to higher economic status. That was certainly true in my generation, but it seems not to be the case now. We need to stand back and ask ourselves why.

Even more disturbing than the overall numbers are the numbers for underrepresented minorities and women. I told you that overall enrollment has dropped 3 percent since 1992, but minority enrollment has dropped 9 percent! African-American enrollment has dropped 17 percent! The percentage of women has held steady, just a tad under 20 percent of the entering freshman class, but those numbers, bad as they are, don't tell the full story. At the same time the number of engineering students has been going down or holding steady, the number of minorities entering universities has been going up, and the number of women entering universities has been going up. That means engineering is capturing a smaller and smaller *market share* of the total enrollment.

As president of the NAE, whose members are among the most creative engineers in the world, I can tell you they are *really* interesting, and that is not a happenstance. Collective diversity, what people usually mean by diversity, is essential to good engineering at a fundamental level. Men, women, people from different ethnic backgrounds, the handicapped—each of them experiences a different world. Each of them has had different life experiences.

I think of these life experiences as the “gene pool” out of which creativity comes, out of which elegant engineering solutions come. The quality of engineering is affected directly by the degree of diversity in the engineering team for that project. It doesn't take a genius to see that, in a world of global commerce, we must design products that are sensitive to many cultural taboos and for very different customers. But the need is deeper than that. The range of possible solutions to an engineering problem will be smaller from a nondiverse design team, and the *elegant* solution to a human problem may not be among them. That limitation can have substantial, but hidden, economic costs, opportunity costs, costs that must be measured in terms of designs not considered.

Opportunity costs are very hard to measure, but they are very real. To illustrate the problem, let me tell you something from my own experience. One of my interests over the years has been computer security, and until fairly recently, I still had two graduate students at the University of

Virginia. One of my students came to me with a problem she wanted to solve. She wanted to be able to run an application program and to know that either (1) the application had not been compromised and was, therefore, working correctly or (2) that it had been compromised and should be ignored. But she wanted to run this program on a computer belonging to the “bad guys” who had access to everything. They could pull the plug out of the wall, could examine all of the software including the software my student wanted to run, could make arbitrary modifications to the underlying operating system, could make arbitrary modifications to the hardware, could modify the application my student wrote, and so on. In addition, because the application had to run virtually forever, the bad guy would have all the time in the world to analyze the situation. I looked at that problem, and I said, “No way. You can’t do that!” I told her not to waste her time, that it was an impossible problem.

But my student found a solution; not just any old solution but a truly *elegant* solution. I don’t know whether it was because she is a woman or because of her Chinese background, but her life experiences enabled her to see a solution I would never have seen. Once she explained it to me, I understood it, of course. In fact, I was able to build a proof that it would work—a nice linear, male, left-brain proof.

To sum up, I believe that diversity is essential to good engineering! In addition to the issue of fairness and equity, in addition to the issue of numbers, there is an issue of *quality*. For good engineering, we *require* a diverse engineering team. But for some reason, engineering has become repugnant to young people. We need to face that fact and try to change it. There is no silver bullet to fix our image. We are going to have to work on it over a long period of time. But if we don’t start working on it, we’re never going to break out of this destructive, negative feedback cycle. In the meantime, we can do a great deal. The organizations you represent have already taken aggressive, visible actions to address the problem. I believe we can make a start by sharing your experiences with each other and with us.

Please write down your answers to the following questions:

- 1) What unique experiences do you have that might enable you to consider out-of-the box Engineering solutions?
- 2) What are some examples of Engineering solutions that might require a unique perspective?
- 3) What are some examples of Engineering practices or behaviors that might exclude people from different backgrounds?
- 4) What are some changes that can be made in the Engineering field, or changes in our own behavior, that could promote inclusion?

## Are You Reflected Here?

Image: *The Mirror Book* by Ronald King & John Christie (Bookwork Guildford)



Reflect on who you are in the broadest sense. This means think beyond just your gender and race/ethnicity to include your major, interests, hobbies, responsibilities, experiences, day-to-day activities, etc.

Design a statics problem, similar to the ones in the textbook, that reflects who you are in the broadest sense (consider your major, interests, hobbies, responsibilities, experiences, day-to-day activities, gender etc.). Be sure to give enough information, provide an illustration, and complete solution.

For example:

As a woman, I was pleased to see the following problem in the 12<sup>th</sup> Edition of your textbook.

5-19. Compare the force exerted on the toe and heel of a 120-lb woman when she is wearing regular shoes and stiletto heels. Assume all her weight is placed on one foot and the reactions occur at points *A* and *B* as shown.



Then, I began to reflect on hearing several women say that wedge heels were more comfortable and explored the possibility of writing a problem. Here is my first draft:

A 120-lb woman complains that the ball of her foot hurts when she wears a stiletto style shoe. Assuming that all of her weight is on one foot and that there are two normal reaction forces at *A* and *B*, compare the normal reaction force at *B* for her bare foot and for the stiletto shoe. Does she have a valid complaint? Use the principles of statics to explain why she might be more comfortable in a wedge shoe.



|           | Dimensions |         |
|-----------|------------|---------|
|           | A to G     | G to B  |
| Bare foot | 1.25 in    | 5.75 in |
| Stiletto  | 0.75 in    | 3.75 in |
| Wedge     | 0.75 in    | 3.75 in |



**Elon University**  
**Consent to Participate in a Research Study**

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**IRB Study #**

**Consent Form Version Date:** September 27, 2018

**Title of Study: Enhancing Diversity and Inclusion in Elon Engineering**

**Principal Investigator:** Richard Blackmon

**Phone number:** 336-278-6784

**Email Address:** rblackmon2@elon.edu

**Co-investigator:** Sirena Hargrove-Leak

**Phone number:** 336-278-6224

**Email Address:** sleak@elon.edu

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**What are some general things you should know about research studies?**

You are being asked to take part in a research study. To join the study is voluntary.

You may refuse to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. You may not receive any direct benefit from being in the research study. There also may be risks to being in research studies.

Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this research study. You will be given a copy of this consent form. You should ask the researcher named above any questions you have about this study at any time.

**What is the purpose of this study?**

The purpose of this research study is to investigate practices in the Elon Engineering program that promote diversity and inclusion.

**How many people will take part in this study?**

If you decide to be in this study, you will be one of approximately 70 people in this research study.

**How long will your part in this study last?**

You are asked to participate for the duration of the course through normal classroom activities. Your participation will not require any additional work beyond the scope of the planned class activities and assignments.

**What will happen if you take part in the study?**

You will continue as a student in EGR 121: Challenges in Engineering or EGR 206: Statics. After grades are submitted for the class, Dr. Richard Blackmon or Dr. Hargrove-Leak will remove your name from the work you completed for this class, if necessary, substituting a code, so that your work will no longer be identified as yours. Dr. Richard Blackmon and Dr. Hargrove-Leak will examine your work for changes in your evaluation of Elon Engineering practices.

**What are the possible benefits from being in this study?**

Research is designed to benefit society by gaining new knowledge. This knowledge will be used to make changes to Elon's Engineering program to promote diversity and inclusion. These changes will be implemented upon completion of the study, which may benefit students who continue in the program next year.

**What are the possible risks or discomforts involved from being in this study?**

There are no known risks or discomforts associated with participating in this research.

**How will your privacy be protected?**

All research data, including this consent form, survey data, and assignments will be stored in a locked filing cabinet in Dr. Richard Blackmon's or Dr. Hargrove-Leak's office and/or on a password protected university-issued computer.

Participants will be de-identified in any report or publication about this study in order to protect participants' privacy. Only the researchers will have access to individually identifiable data. Although every effort will be made to keep research records private, there may be times when federal or state law requires the disclosure of such records, including personal information. This is very unlikely, but if disclosure is ever required, Elon University will take steps allowable by law to protect the privacy of personal information. In some cases, your information in this research study could be reviewed by representatives of the University, research sponsors, or government agencies for purposes such as quality control or safety.

**Will you receive anything for being in this study?**

You will not receive anything for taking part in this study.

**Will it cost you anything to be in this study?**

There will be no costs for being in the study.

**What if you are an Elon student?**

You may choose not to be in the study or to stop being in the study before it is over at any time. This will not affect your class standing or grades at Elon. You will not be offered or receive any special consideration if you take part in this research.

**What if you have questions about this study?**

You have the right to ask, and have answered, any questions you may have about this research. If you have questions, or concerns, you should contact the researchers listed on the first page of this form.

**Will results of this research be made available to you?**

Yes, you are welcome to read any published reports of the research.

**What if you have questions about your rights as a research participant?**

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have any questions or concerns regarding your rights as a research subject, you may contact the Chairperson of the Institutional Review Board (Dr. Stephen Bailey) at baileys@elon.edu or 336-278-6346.

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**Title of Study: Enhancing Diversity and Inclusion in Elon Engineering**

**Principal Investigator:** Richard Blackmon

**Co-Investigator:** Sirena Hargrove-Leak

**Participant's Agreement:**

I have read the information provided above. I have asked all the questions I have at this time. I voluntarily agree to participate in this research study.

\_\_\_\_\_  
Signature of Research Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name of Research Participant

\_\_\_\_\_  
Signature of Person Obtaining Consent

\_\_\_\_\_  
Date

Sirena Hargrove-Leak  
Printed Name of Person Obtaining Consent

\_\_\_\_\_  
Signature of Person Obtaining Consent

\_\_\_\_\_  
Date

Richard Blackmon  
Printed Name of Person Obtaining Consent

### Diversity and Inclusion Survey

Please provide us with your OnTrack ID number: \_\_\_\_\_

For each of the 27 statements below please select a number to reflect the degree to which you agree or disagree (NOTE: 1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree; 5 = strongly disagree). Please give only one response for each statement. NA="No Answer." Please choose this option if you prefer not to answer, the question is not relevant to you, or you do not know how to answer.

\*Underrepresented groups are those whose representation is lower in STEM than in the general population, including women, people of color, and LGBTQIA people.

|   | SA -----> SD | NA |
|---|--------------|----|
| Elon Engineering has always promoted diversity and inclusion.                                 | 1 2 3 4 5    |    |
| Discussions of diversity and inclusion do not belong in the classroom.                        | 1 2 3 4 5    |    |
| The environment of my Engineering courses is inclusive.                                       | 1 2 3 4 5    |    |
| Diversity and inclusion activities helped me understand their importance in Engineering.      | 1 2 3 4 5    |    |
| I have experienced or witnessed prejudice from other students in Engineering courses.         | 1 2 3 4 5    |    |
| I was instructed on the importance of diversity and inclusion in this course.                 | 1 2 3 4 5    |    |
| Elon Engineering could be doing more to promote diversity and inclusion.                      | 1 2 3 4 5    |    |
| I feel that my voice is heard in classroom discussions pertaining to diversity and inclusion. | 1 2 3 4 5    |    |
| I am aware of resources available to underrepresented Engineering students.                   | 1 2 3 4 5    |    |
| My Engineering professors have talked about diversity and inclusion in class.                 | 1 2 3 4 5    |    |
| I have experienced or witnessed prejudice from my instructors of Engineering courses.         | 1 2 3 4 5    |    |
| There is no need for more efforts to promote diversity and inclusion in Elon Engineering.     | 1 2 3 4 5    |    |
| I know what I can do as a future professional to promote inclusion in the workplace.          | 1 2 3 4 5    |    |
| I have noticed efforts this year to promote diversity and inclusion in Elon Engineering.      | 1 2 3 4 5    |    |
| There is a need for initiatives to promote diversity and inclusion outside of the classroom.  | 1 2 3 4 5    |    |
| I know about demographic-specific Engineering societies.                                      | 1 2 3 4 5    |    |
| There is a need for better representation of underrepresented groups in my course material.   | 1 2 3 4 5    |    |
| Academic activities with classmates outside of class are inclusive.                           | 1 2 3 4 5    |    |
| I feel comfortable having conversations about diversity and inclusion in class.               | 1 2 3 4 5    |    |
| I know what I can do as a student to promote inclusion among my peers.                        | 1 2 3 4 5    |    |
| I'm aware that underrepresented groups are disproportionately represented in Engineering.     | 1 2 3 4 5    |    |
| I understand why Elon Engineering is making an effort to promote diversity and inclusion.     | 1 2 3 4 5    |    |
| There is a need for better representation of underrepresented groups in my course lectures.   | 1 2 3 4 5    |    |
| I know how diversity and inclusion relate to each other.                                      | 1 2 3 4 5    |    |
| I am unsure of the difference between diversity and inclusion.                                | 1 2 3 4 5    |    |