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UNIVERSITY OF NEBRASKA-LINCOLN COLLEGE OF ENGINEERING



# GRADUATE STUDENT RECRUITMENT TASK FORCE

FINAL REPORT  
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## TASK FORCE MEMBERS

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## EXECUTIVE SUMMARY

The Task Force members evaluated current practices for student recruitment within the College of Engineering at UNL and analyzed statistical data from other institutions to compare graduate student populations. In the process strength and weaknesses were identified. Task Force members discussed opportunities and created a list of action items with the goal to improve the pool of applicants and to provide a framework for an effective graduate student recruitment process. The action items may be completely or partially incorporated into best practices or graduate student recruitment at the College of Engineering.

## INTRODUCTION AND SCOPE

### Task Force Goal

- Develop a framework for improving graduate student recruitment on the (departmental) program level and at the college level.
- Improvement of the applicant pool for graduate students by increasing numbers, diversity and quality

### Evaluation Criteria

- Current graduate student make-up
- Development of available recruitment funds
- Employment of GTAs
- Minimum GRA/GTA stipend
- Recruitment of regional domestic undergraduate students
- Recruitment of our own undergraduate students
- Strategies on how to work with international partners to develop pipelines

After data analysis, the Task Force members shared a summary of their results from the evaluation with faculty and the college leadership during the COE faculty meetings in December 2017 and January 2018. Based on the evaluation, a list with recommendations for improvement was created and also shared during those meetings.

Faculty across the college were asked for their experiences in graduate student recruitment and encouraged to actively participate in the process to provoke thoughts for opportunities to improve current practices. The college leadership created a website where faculty could leave comments and recommendations.

### Data Analysis and Summary of Observations

The Task Force team was comprised of representatives from all departments within the college and met four times during the academic year 2017-2018. During the meetings, team members shared their experiences in the recruitment process within their home departments. In discussions, it was found that each department faces their own individual challenges when reaching out and attracting strong graduate school applicants. However, there was consensus among Task Force group members about following items:

- COE graduate programs prepare students well for the workforce. Graduates have excellent opportunities to continue their careers in academia as well as in lucrative industry positions.
- Whereas it is feasible to recruit highly qualified students from our own undergraduate programs, it is difficult to reach out to prospective students on the regional and national level. It was generally found that the COE graduate program is relatively unknown beyond the state boundaries.
- There was a significant drop in the overall quality of the pool of students who applied to COE graduate school in some programs. Faculty members believe that college ranking, lack of visibility of COE graduate programs, low stipends,

and geographical location may affect the recruitment of a strong pool of students.

- It was shared that some faculty may be reluctant to hire domestic students or in the case that funding is not secured for an anticipated Ph.D. student graduation time of five years.

Besides evaluating graduate student recruitment within the college, the Task Force also looked at graduate student populations in other engineering schools and compared findings to the graduate student body in the College of Engineering at UNL. The committee investigated data from Big Ten, Big 12 and peer institutions.

Specific consideration was given to institutional differences in stipends, tuition, living costs, institutional support for graduate students and geographical location. The task force explicitly looked into data from following schools:

#### Big Ten Institutions

Purdue University, University of Michigan, Michigan State University, Ohio State University, Northwestern University, University of Maryland, University of Minnesota, University of Wisconsin, Penn State University, University of Iowa, University of Illinois

#### Big 12 Institutions

University of Kansas, Iowa State University

#### Peer Institutions

University of Colorado, Colorado State University, University of Missouri

The statistical material available to the Task Force did not provide all data for investigated schools. The Task Force tried to use statistically significant data to benchmark student populations and their success in graduate programs across all institutions, from this study. The summary of our observations is listed below:

- The graduate student enrollment in the College of Engineering increased by about 45% from 1995 to 2017. Whereas the master's student population remained almost constant over that period of time, the Ph.D. student population tripled.
- Combining tuition and housing, the costs of attending the College of Engineering at UNL are in the same range as costs of attendance at peer institutions such as Missouri University, Iowa State and Kansas. UNL COE has considerably lower costs of attendance than Big Ten institutions.
- UNL COE student stipends are lower compared to stipends that graduate students receive at most other institutions that doesn't completely balance the lower costs of attendance. UNO, for example, pays higher stipends than UNL.
- UNL COE has the lowest graduate student enrollment per tenure track faculty
- To evaluate institutional support, the Task Force investigated the number of fellowships and TAs per faculty among Big Ten institutions. It was found that the institutional graduate student support within the COE at UNL is low with 0.52 TAs per faculty compared to other institutions, which support at least 1.2 students per faculty (exceptions: no data were available from Northwestern University, and University of Michigan supports 0.73 TAs/fellowships per

faculty). Institutions that support close to or more than two graduate students per faculty are Purdue, Illinois, Minnesota and Maryland.

- The master student population in the college shows a low level of diversity compared to other institutions in respect to racial and gender distributions. There is a small percentage of non-residential students enrolled in the COE master program, and the international student population is one of the lowest among other investigated institutions.
- UNL COE has the highest number of non-resident aliens among Ph.D. students compared to other institutions.
- The graduation rate for masters' students and Ph.D. students is in the range for graduation rates found at other institutions, suggesting that admitted students are academically qualified and successful in their programs.

Summarizing the outcomes from the analysis of the statistical data, the Task Force members made the following observations about the COE graduate program at UNL:

Meets expectation:

- Master's student time until graduation (2 years)
- Ph.D. student time until graduation (5-6 years)

Needs improvement:

- Graduate student program lacks diversity, especially in terms of number of domestic Ph.D. students
- Improve the depth of the graduate student application pool according to quality, numbers and diversity
- Graduate student enrollment per faculty
- Institutional support

## RECOMMENDATIONS AND OPPORTUNITIES

During discussions among Task Force members, it became obvious that each department faces their own challenges in the graduate student recruitment process. It was, however, agreed on that the quality of the graduate program is the most important factor for attracting prospective students. While it seems that most efforts should remain within departments, there are a few things that could be done on the college level. These recommendations are summarized in the list of action items"

### 1. Staff member for Graduate Student Recruitment

The COE would benefit from a staff member who will be fully dedicated to graduate student recruitment and interacts with each department's graduate committee. It should be explored if a database can be purchased from a testing company, which contains e-mail contacts from students who recently took the GRE. High achieving students who name the type of program they would like to attend could be contacted by the staff person and introduced to UNL on a more personal level.

## **2. Support for printed recruitment material such as posters, flyers, brochures and calendars**

The Task Force had the feeling that research accomplishments and graduate programs are not well recognized outside the state of Nebraska. It is suggested to create posters, flyers and brochures that can be distributed during research fairs or recruitment events. The recruitment material may include success stories from recent graduates on obtaining great positions in industry or academia. An annual calendar highlighting best images from ongoing research activities can be created and shared with peer Big Ten and Big 12 institutions to reach for more visibility on their campuses. The calendar may contain best images from college-wide competitions and highlights ongoing research projects. The material may be produced in close collaboration between departments and the college or university Communication Offices.

## **3. Recruitment of students from the College of Engineering**

Undergraduate students may be advised about benefits of attending graduate school. Various faculty within the college observed that a majority of undergraduate students have only a vague idea about the costs of attending graduate school. They do not completely understand the requirements for graduate school and the long-term opportunities. The college may use popular student gatherings such as events during the Engineering E-week to offer informational meetings and workshops which may guide students towards the next steps in their career.

## **4. Pipelines for graduate student recruitment**

Pipelines for recruiting graduate students should be established. This may include a partnership with regional undergraduate serving institutions. Such institutions usually do not offer engineering undergraduate degrees but may have a strong science curriculum. Departments within the college may need to develop guidelines for transfer students from those colleges. The guidelines may include practices on how to grant credits for previously taken courses and which coursework will be required before the Ph.D. qualifying exam can be taken. Partnerships with regional four-year colleges could be established that offer a 3+2 year program towards an engineering degree. Students will finish their first three years of college at an undergraduate- serving institution and finish their engineering degree within two years at UNL and may decide to stay for graduate school. Reaching out to four-year colleges may be an effective way to recruit domestic students, females and minorities, for example.

## **5. Pipelines for international student recruitment**

Pipelines should be used to recruit high quality international students. Programs such as the student exchange program with the Chinese Research Council was very successful in the past and brought many high quality and motivated students on campus. Similar exchange programs may exist with other countries, too.

**6. Institutional Support**

The institutional support for graduate student employment should be improved. It is recommended to increase the number of college-funded TA lines to one student per faculty, which is still lower than the institutional support granted at most other Big Ten institutions. This may have a high return because faculty will be able to offer high performing students a competitive package in terms of stipend and contract duration. For example, meritorious students can be hired on contracts with a duration beyond the typical year even if research funding is not secured and a financial gap needs to be filled. To encourage hiring of domestic students it might be useful to cap TA lines which can be awarded to international students.

**7. Graduate student stipends**

The college may review their policy in regard to student stipends especially in term of minimum payment and flexibility with annual stipend progressions.

**8. Graduate student social activities**

The college and departmental graduate student associations may consider increasing their investment in organizing fun events (e.g., camping in the Sandhills' region, Platte River valley, etc.) that strengthens cohesion of the graduate student population and may act as an indirect recruitment tool for new graduate students. Current students may spread the word and communicate their positive social experience during graduate school. Images from events may also be included into printed recruitment material.

**9. Annual Regional Undergraduate Research Fair**

Investigations have shown that students will be more likely inclined towards attending graduate school after being exposed to current state-of-the-art research and active interactions with research faculty. An annual regional undergraduate research fair can be organized to invite students from other institutions in the Midwest to share their research accomplishments in poster sessions and talks. The research fair could include panel discussions with alumni and other representatives from industry and academia. Student will be stimulated to actively think about attending graduate school. It is also an opportunity to establish a personal contact between faculty and prospective students.