Student Learning Outcomes, with Any Associations and Related Measures, Targets, Findings, and Action Plans

SLO 4: Mastery of the foundations
The program enables all students to achieve and demonstrate mastery regarding the foundations of computer science

Related Measures

M 1: Mastery - Qualifying Exam completion rates
Percentage of students who successfully complete the doctoral qualifying exam
Source of Evidence: Academic direct measure of learning - other
Target:
Per UA policy, there is no predefined target for this measure

Related Action Plans (by Established cycle, then alpha):
For full information, see the Details of Action Plans section of this report.

New methods to measure PhD competence
Established in Cycle: 2011-2012
Investigate metrics that can be used to assess the competence of our doctoral students with respect to their understanding and k...

M 2: Mastery - Placement
Tracks the placement of our doctoral graduates in the job market (both industry and academia), as well as their ability to obtain their "job of choice" within the field
Source of Evidence: Academic indirect indicator of learning - other
Target:
Per UA policy, there is no predefined target for this measure

SLO 5: Ability to contribute to the discipline
Graduating students have demonstrated the ability to contribute to the discipline in a specific area

Related Measures

M 3: Contribute - Conference papers
Conference papers that include at least one student author
Source of Evidence: Academic direct measure of learning - other
Target:
Per UA policy, there is no predefined target for this measure

M 4: Contribute - Journal papers
Journal papers that include at least one student author
Source of Evidence: Academic direct measure of learning - other
Target:
Per UA policy, there is no predefined target for this measure

Other Outcomes, with Any Associations and Related Measures, Targets, Findings, and Action Plans

OthOtcm 1: Program Quality
The program will improve and sustain a high level of recognized quality

OthOtcm 2: Program Optimum Enrollment
The program will build and sustain an optimal level of annual program enrollments and degree completions

OthOtcm 3: Program Highly Valued
The program will be highly valued by its program graduates and other key constituencies it serves

Details of Action Plans for This Cycle (by Established cycle, then alpha)

New methods to measure PhD competence
Investigate metrics that can be used to assess the competence of our doctoral students with respect to their understanding and knowledge of the core foundations of our discipline. This is currently being done by looking at doctoral qualifying exam pass rates, which are no longer a valid metric. The original doctoral qualifying exam focused was a breadth exam that focused on ensuring understanding of the discipline. The new exam is a depth exam that focuses on competence within a student's specific research area only. This topic will be addressed by the faculty at our Fall 2012 retreat (August 2012).

Established in Cycle: 2011-2012
Implementation Status: Planned
Priority: High

Relationships (Measure | Outcome/Objective):
Measure: Mastery - Qualifying Exam completion rates | Outcome/Objective: Mastery of the foundations
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**Doctoral Student Journal Production**

The department needs to place a greater emphasis on the generation of scholarly journal publications by its doctoral students. Currently, many doctoral students are focusing on conference publications and presentations rather than journal articles.

**Established in Cycle:** 2012-2013  
**Implementation Status:** Planned  
**Priority:** High  
**Implementation Description:** Work with the students to inform them of this shift in emphasis, and work with the faculty to ensure that they are developing journal papers (co-authored) with their doctoral students.  
**Responsible Person/Group:** All CS tenured/tenure-track faculty members
Student Learning Outcomes, with Any Associations and Related Measures, Targets, Findings, and Action Plans

**SLO 4: Mastery of the foundations**
The program enables all students to achieve and demonstrate mastery regarding the foundations of computer science

**Related Measures**

**M 1: Mastery - Qualifying Exam completion rates**
Percentage of students who successfully complete the doctoral qualifying exam

Source of Evidence: Academic direct measure of learning - other

**Target:**
Per UA policy, there is no predefined target for this measure

**Finding (2012-2013) - Target: Met**
We once again saw a strong performance by students on the doctoral qualifying exam. It is significant to note that several of the presentations were converted directly into literature review papers that were submitted to conferences. While we acknowledge that the qualifying exam, in its new format, is not a good measure for assessing whether or not our doctoral students have demonstrated a “mastery of the foundations of our discipline,” our assessment efforts this past year were focused primarily on the undergraduate program as we prepared for our upcoming ABET visit.

**Related Action Plans (by Established cycle, then alpha):**
For full information, see the Details of Action Plans section of this report.

**M 2: Mastery - Placement**
Tracks the placement of our doctoral graduates in the job market (both industry and academia), as well as their ability to obtain their “job of choice” within the field

Source of Evidence: Academic indirect indicator of learning - other

**Target:**
Per UA policy, there is no predefined target for this measure

**Finding (2012-2013) - Target: Met**
The department graduated eight doctoral students this past year. According to the major professor for each student, all students were able to obtain a position that met their expectations and desires. This included both positions in industry and academia.

**SLO 5: Ability to contribute to the discipline**
Graduating students have demonstrated the ability to contribute to the discipline in a specific area

**Related Measures**

**M 3: Contribute - Conference papers**
Conference papers that include at least one student author

Source of Evidence: Academic direct measure of learning - other

**Target:**
Per UA policy, there is no predefined target for this measure

**Finding (2012-2013) - Target: Met**
We continue to send a significant number of students to conferences on a regular basis. We utilize Graduate School matching funds, and have supported all students who have requested travel for domestic trips. Our numbers are down slightly from last year, but we continue to support 100% of the students who have papers accepted into conferences. This year our faculty presented 86 peer-reviewed papers at conferences, with well over 50% of them involving student authors.

**M 4: Contribute - Journal papers**
Journal papers that include at least one student author

Source of Evidence: Academic direct measure of learning - other

**Target:**
Per UA policy, there is no predefined target for this measure

**Finding (2012-2013) - Target: Met**
This past year, our faculty published 68 papers in peer-reviewed journals. We also graduated 8 doctoral students. These eight students all left campus with multiple conference and journal publications.

**Related Action Plans (by Established cycle, then alpha):**
For full information, see the Details of Action Plans section of this report.

**Doctoral Student Journal Production**
*Established in Cycle: 2012-2013*
The department needs to place a greater emphasis on the generation of scholarly journal publications by its doctoral students.

Other Outcomes, with Any Associations and Related Measures, Targets, Findings, and Action Plans

OthOtcm 1: Program Quality
The program will improve and sustain a high level of recognized quality

Related Measures

M 5: Program Quality - Qualifier success
All students in the doctoral program must successfully complete their doctoral qualifying exams. Pass rates for this exam are monitored as an indication of student/program quality.

Source of Evidence: Academic direct measure of learning - other

Target:
Per UA policy, there is no predefined target for this measure

Finding (2012-2013) - Target: Met
Fall 2013 saw five successful completions and one failure for the doctoral qualifying exam. The one individual who did not pass will re-attempt the exam in Spring 2014.

M 6: Program Quality - Faculty scholarly activity
The number of journal papers and research awards received by the faculty in the previous year is an indication of their engagement with graduate students on current research and scholarly activities.

Source of Evidence: Academic direct measure of learning - other

Target:
Per UA policy, there is no predefined target for this measure

Finding (2012-2013) - Target: Met
For the 2012-2013 academic year, the fifteen tenured/tenure-track faculty members in Computer Science published 68 refereed journal articles, had 86 refereed conference publications, and generated $6,663,071 in new research awards

OthOtcm 2: Program Optimum Enrollment
The program will build and sustain an optimal level of annual program enrollments and degree completions

Related Measures

M 7: Program Optimum Enrollment - enrollment
captures the current enrollment for the doctoral program, indicating the sustainability of the program

Source of Evidence: Academic direct measure of learning - other

Target:
Per UA policy, there is no predefined target for this measure

Finding (2012-2013) - Target: Met
Enrollment numbers from Fall 2009 to Fall 2012 are 35, 39, 41 and 38. These numbers are consistent with a two-doctoral-students-per-faculty member ratio.

M 8: Program Optimum Enrollment - graduation
Captures graduation rates for the doctoral program, indicating the ability of the program to successfully graduate students (and maintain viability)

Source of Evidence: Academic direct measure of learning - other

Target:
Per UA policy, there is no predefined target for this measure

Finding (2012-2013) - Target: Met
Doctoral graduations for last four academic years (2009/10 through 2012/2013) are 4, 3, 5 and 8. We are starting to see increased graduation numbers as a result of the increase in program size a few years ago.

OthOtcm 3: Program Highly Valued
The program will be highly valued by its program graduates and other key constituencies it serves

Related Measures

M 9: Program Highly Valued - Exit Interviews
Faculty members with graduating doctoral students have discussions with both the student and the department chair. These discussions focus on the strengths of the program as well as areas for improvement.

Source of Evidence: Exit interviews with grads/program completers

Target:
Per UA policy, there is no predefined target for this measure

Finding (2012-2013) - Target: Met
Conversations with the various major professors who graduated doctoral students and the graduate program director indicate that students appreciate the change made a few years ago to allow more flexibility with their doctoral studies. They also expressed satisfaction that their degree and background is competitive for them to pursue a career of their choice.

M 10: Program Highly Valued - Advisory Board
The department has an Advisory Board that meets twice a year (one via video-conference, once in-person). At these meetings, discussions take place regarding the quality of each of our degree programs as well as opportunities for improvement within each program. The Advisory Board consists of both industrial members as well as alumni from each of our degree programs.
Source of Evidence: Advisory board or community feedback on program

**Target:**
Per UA policy, there is no predefined target for this measure

**Finding (2012-2013) - Target: Met**
At the Spring 2013 Advisory Board meeting, discussions were held regarding all three degree programs in computer science. Several of the advisory board members are doctoral graduates from UA. Satisfaction was expressed regarding the growth in the doctoral program, as well as the expanded research opportunities within the department.

### Details of Action Plans for This Cycle (by Established cycle, then alpha)

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SLO 1: Mastery of the foundations
The program enables all students to achieve and demonstrate mastery regarding the foundations of computer science

Related Measures

M 1: Qualifying Exam completion rates
Percentage of students who successfully complete the doctoral qualifying exam
Source of Evidence: Academic direct measure of learning - other
Target: Per UA policy, there is no predefined target for this measure
Finding (2011-2012) - Target: Met
This past year we had nine students who successfully passed the doctoral qualifying exam. Six students passed in the Fall 2011 semester (one failed and had to repeat). In Spring 2012 we had three students who successfully completed the exam. This group of three included the one individual that did not pass the exam in the Fall semester.

We recognize that the doctoral qualifying exam, in its new format, is not a good measure for assessing whether or not our doctoral students have demonstrated a “mastery of the foundations of our discipline.”

Related Action Plans (by Established cycle, then alpha):
For full information, see the Details of Action Plans section of this report.

New methods to measure PhD competence
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SLO 2: Ability to contribute to the discipline
Graduating students have demonstrated the ability to contribute to the discipline in a specific area

Related Measures

M 2: Conference papers
Conference papers that include at least one student author
Source of Evidence: Academic direct measure of learning - other
Target: Per UA policy, there is no predefined target for this measure
Finding (2011-2012) - Target: Met
This past year, the department had 43 separate students attending conferences. These students attended a total of 75 unique conferences, with some students attending more than one conference. There were 48 student presentations made at these conferences (papers and posters). These conference trips were funded by both departmental funds, Graduate School matching ($300 per trip), and individual faculty research grants.

It should be noted that the number of actual student attendances and presentations is higher than normal, as the Department hosted the 50th ACM Southeast Conference this past Spring.

M 3: Journal papers
Journal papers that include at least one student author
Source of Evidence: Academic direct measure of learning - other
Target: Per UA policy, there is no predefined target for this measure
Finding (2011-2012) - Target: Met
Information reported by faculty on the Faculty Annual Report (FAR) documented that the Department had 23 journal articles accepted or published in 2011-2012 that involved at least one student author. We also generated two book chapters whose authors included students. This represents approximately one-third of the total journal articles accepted or published this past year (65 for the department) and a quarter of the book chapters published (2 of 9).

The ability to publish in scholarly journals speaks directly to the ability of our students to contribute to the discipline.

Details of Action Plans for This Cycle (by Established cycle, then alpha)

New methods to measure PhD competence
Investigate metrics that can be used to assess the competence of our doctoral students with respect to their understanding and knowledge of the core foundations of our discipline. This is currently being done by looking at doctoral qualifying exam pass rates, which are no longer a valid metric. The original doctoral qualifying exam focused was a breadth exam that focused on ensuring understanding of the discipline. The new exam is a depth exam that focuses on competence within a student’s specific research area only. This topic will be addressed by the faculty at
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Our Fall 2012 retreat (August 2012).

- **Established in Cycle**: 2011-2012
- **Implementation Status**: Planned
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