PROJECT STATUS: **Completed**

October 2014

#161 **Using Technology to Collect and Analyze Data to Answer Key Questions on the Success of Students in STEM at PSU**

Collect key questions from faculty and units relating to improving student success in STEM, then finding ways to try to answer those questions.

**ACHIEVEMENTS THIS PERIOD**

(6.2.14-10.19.14)

- Completed project!
- Continued cohort analysis of pre-health students.
- Worked to secure additional background information on pre-health students continued.
- Continued analyzing profile of what faculty in STEM departments would like to know about their students.
- Identified questions for future analysis, and reflected this in project report.
- Wrote report on project findings.

**GOALS FOR NEXT PERIOD**

(10.20.14-11.30.14)

- Complete end-of-project report and summary of project artifacts.
- Post-project work will include:
  - STEM research team will meet to discuss which questions to focus on, where to disseminate report, and to identify who to talk to about extending their research.
  - The project team plans to connect with Elena Andresen, Interim Dean for the Proposed OHSU - PSU School of Public Health, Karen Marrongelle, Interim Dean of CLAS, and Leslie McBride, Acting Director, School of Community Health, to discuss next steps and overall project sustainability.

**KEY DECISIONS**

- None.

**OPEN ISSUES**

- None.

**PROGRESS**

- Completed project!

LEAD: Paul Latiolais, Professor, Fariborz Maseeh
Department of Mathematics and Statistics, College of Liberal Arts & Sciences

PROJECT MANAGER: Hans VanDerSchaaf

COLLABORATORS: PSU STEM Council, including representatives from the College of Liberal Arts & Sciences, Graduate School of Education, and Maseeh College of Engineering & Computer Science
June 2014

#161 Using Technology to Collect and Analyze Data to Answer Key Questions on the Success of Students in STEM at PSU

Collect key questions from faculty and units relating to improving student success in STEM, then finding ways to try to answer those questions.

ACHIEVEMENTS THIS PERIOD
(4.28.14-6.1.14)

- Finished initial conversations with departments to discuss whether they are seeing changes in enrollment patterns in targeted entry-level courses.
- Held May 22 team meeting to begin reviewing draft of report, including a discussion of cluster analysis.
- Continued cohort analysis of pre-health students.
- Worked to secure additional background information on pre-health students.
- Continued work to understand enrollment changes in targeted mathematics courses.
- Finalized Project Management Plan.
- Started drafting report on project findings.
- Started conversations about how this project intersects with the Education Advising Board advising tool PSU is adopting.

GOALS FOR NEXT PERIOD
(6.2.14-10.19.14)

- Cohort analysis of pre-health students continues.
- Complete work to secure additional background information on pre-health students.
- Complete profile of what faculty in STEM departments would like to know about their students.
- Write report on project findings.
- Identify questions for future analysis, and reflect in end-of-project report.
- Complete project.

KEY DECISIONS

- None.

OPEN ISSUES

- None.

LEAD: Paul Latiolais, Professor, Fariborz Maseeh
Department of Mathematics and Statistics, College of Liberal Arts & Sciences

PROJECT MANAGER: Hans VanDerSchaaf

COLLABORATORS: PSU STEM Council, including representatives from the College of Liberal Arts & Sciences, Graduate School of Education, and Maseeh College of Engineering & Computer Science

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#161 Using Technology to Collect and Analyze Data to Answer Key Questions on the Success of Students in STEM at PSU

Collect key questions from faculty and units relating to improving student success in STEM, then finding ways to try to answer those questions.

ACHIEVEMENTS THIS PERIOD  
(3.10.14-4.27.14)

- Cohort analysis of pre-health students continued.
- Work to understand enrollment changes in targeted mathematics courses continued to help answer questions such as, “Are similar patterns happening in other units (e.g. students are moving to community colleges to take introductory courses that require statistics)?”.
- Started writing a report based on initial findings to be shared with STEM faculty and administrators, including Deans.
- Finalized Project Plan (detailed work outline/timeline).

GOALS FOR NEXT PERIOD  
(4.28.14-6.1.14)

- Continuing conversations will happen with departments to discuss whether they are seeing changes in enrollment patterns in targeted entry-level courses.
- May 22 team meeting to begin reviewing draft of report, including a discussion of cluster analysis.
- Cohort analysis of pre-health students continues.
- Work to secure additional background information on pre-health students will continue, as it will throughout most of the project.
- Work to understand enrollment changes in targeted mathematics courses will continue.
- Secure sponsor approvals of the Project Management Plan.

KEY DECISIONS

- Change request approved to refine project scope so that creating a technology interface is no longer part of project. This is a much larger undertaking than originally anticipated, both in terms of time and needed resources.

OPEN ISSUES

- None.

LEAD: Paul Latiolais, Professor, Fariborz Maseeh Department of Mathematics and Statistics, College of Liberal Arts & Sciences

PROJECT MANAGER: Hans VanDerSchaaf

COLLABORATORS: PSU STEM Council, including representatives from the College of Liberal Arts & Sciences, Graduate School of Education, and Maseeh College of Engineering & Computer Science
#63 Using Technology to Collect and Analyze Data to Answer Key Questions on the Success of Students in STEM at PSU

Collect key questions from faculty and units relating to improving student success in STEM, then finding ways to try to answer those questions.

ACHIEVEMENTS THIS PERIOD (2.3.14-3.9.14)

- Project team continued cohort analysis (test run has been completed) of pre-health students.
- Project team worked to secure background information of pre-health students, in terms of the math courses they take (course taking strategies and how successful they are).
- Presentations were made to faculty, administrators continue, and Physics.
- Initial findings on enrollment growth and suppression of growth in targeted courses in mathematics seems to suggest that: the ALEKS placement is increasing the flow of STEM students, except in statistics, where it's possible that large format courses and competition from other institutions might be negatively impacting enrollment.

GOALS FOR NEXT PERIOD (3.10.14-4.27.14)

- Cohort analysis of pre-health students continues.
- Work to secure additional background information on pre-health students will continue, as it will throughout most of the project.
- Work to understand enrollment changes in targeted mathematics courses will continue to help answer questions such as, "Are similar patterns happening in other units (e.g. students are moving to community colleges to take introductory courses that require statistics)?".
- Presentations will be made to Chemistry and Biology about project, including asking these departments if they are seeing changes in enrollment patterns in targeted entry-level courses.
- Write a report based on initial findings to be shared with STEM faculty and administrators, including Deans.
- Create and finalize Project Plan (detailed work outline/time-line).
- Create and finalize Project Management Plan (brief document covering project scope, roles, and change management process).

KEY DECISIONS

- None.

OPEN ISSUES

- None.

LEAD: Paul Latiolais, Professor, Fariborz Maseeh Department of Mathematics and Statistics, College of Liberal Arts & Sciences

PROJECT MANAGER: Hans VanDerSchaaf

COLLABORATORS: PSU STEM Council, including representatives from the College of Liberal Arts & Sciences, Graduate School of Education, and Maseeh College of Engineering & Computer Science
PROVOST’S CHALLENGE

PROJECT STATUS: On Schedule
February 2014

#161 Using Technology to Collect and Analyze Data to Answer Key Questions on the Success of Students in STEM at PSU

Collect key questions from faculty and units relating to improving student success in STEM, then finding ways to try to answer those questions.

ACHIEVEMENTS THIS PERIOD (12.15.13-2.4.14)

- Hosted workshop in mid-December with project team to discuss initial work and findings, which included:
  - Discussion of report on analysis of freshman enrolled in entry-level math courses.
  - Initial summary of cluster analysis.
  - Update on analysis Jim Hook is conducting in Maseeh College of Engineering and Computer Science, to help as a model for tracking all STEM students.
- Project team was able to secure and analyze data.
- Identified a cohort (pre-health students; 6,000 active files currently) to focus on in gathering data and promoting for the support of student success and economic development.
- Have begun presenting analysis to the CLAS Dean’s office, STEM Council and to the Office of Academic Affairs.

GOALS FOR NEXT PERIOD (2.3.14-3.9.14)

- Project team will continue cohort analysis (test run has been completed) involving pre-health students.
- Project team will secure background information of pre-health students, in terms of the math courses they take (course taking strategies and how successful they are).
- Presentations to faculty and administrators will continue, including Chemistry, Biology and Physics.
- Create and finalize Project Plan (detailed work plan/time-line).
- Create and finalize Project Management Plan (brief document covering project scope, roles, and change management process).

KEY DECISIONS

- None.

OPEN ISSUES

- None.

LEAD: Paul Latiolais, Professor, Fariborz Maseeh
Department of Mathematics and Statistics,
College of Liberal Arts & Sciences

PROJECT MANAGER: Hans VanDerSchaaf

COLLABORATORS: PSU STEM Council, including representatives from the College of Liberal Arts & Sciences, Graduate School of Education, and Maseeh College of Engineering & Computer Science

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**ACHIEVEMENTS THIS PERIOD (11.15.13-12.15.13)**

- Paul Latiolais and Austina Fong completed an analysis of freshman enrolled in entry-level math courses for the past four years, and are preparing a report.
- Jeremy Parra is working on cluster analysis.

**GOALS FOR NEXT PERIOD (12.15.13-2.2.14)**

- Host workshop on December 19 with project team to discuss initial work and findings.
- Mid-December workshop will include:
  - Discussion of report on analysis of freshman enrolled in entry-level math courses.
  - Initial summary of cluster analysis.
  - Update on analysis Jim Hook is conducting in the Maseeh College of Engineering and Computer Science, to help inform the creation of a model for tracking all STEM students.
- Create and finalize Project Plan (detailed work plan/timeline).
- Create and finalize Project Management Plan (brief document covering project scope, roles, and change management process).

**KEY DECISIONS THIS PERIOD (11.15.13-12.15.13)**

- None.

**OPEN ISSUES/NOTES ON PROJECT STATUS**

- Possible delay in securing and analyzing data.

**LEAD:** Paul Latiolais, Professor, Fariborz Maseeh Department of Mathematics and Statistics, College of Liberal Arts & Sciences

**PROJECT MANAGER:** Hans VanDerSchaaf

**COLLABORATORS:** PSU STEM Council, including representatives from the College of Liberal Arts & Sciences, Graduate School of Education, and Maseeh College of Engineering & Computer Science
#161: Using Technology to Collect and Analyze Data to Answer Key Questions on the Success of Students in STEM at PSU

Collect key questions from faculty and units relating to improving student success in STEM, then finding ways to try to answer those questions.

<table>
<thead>
<tr>
<th>Project Status: On Schedule</th>
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<tr>
<th>Achievements this period (5.2013-11.15.13)</th>
<th>Goals for next period (11.16.13-12.15.13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Secured internal approvals for PSU faculty to engage in the project.</td>
<td>● Meet with other Provost's Challenge projects that involve STEM to identify how this project relates to these projects, and how answers to STEM questions could assist their projects.</td>
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<tr>
<td>● Project team has started to fully define the process of answering STEM questions, including work with the PSU STEM Council and PSU’s Office of Institutional Research and Planning.</td>
<td>● Continue work to collect and analyze data to answer STEM questions.</td>
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<tr>
<th>Key decisions this period (5.2013-11.15.13)</th>
<th>Open issues</th>
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<tbody>
<tr>
<td>● None at this time.</td>
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</tbody>
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**Lead:** Paul Latiolais, Professor, Fariborz Maseeh Department of Mathematics and Statistics, College of Liberal Arts & Sciences

**Project Manager:** Hans VanDerSchaaf

**Collaborators:** PSU STEM Council, including representatives from the College of Liberal Arts & Sciences, Graduate School of Education, and Maseeh College of Engineering & Computer Science