Embracing Faculty Involvement to Increase Student Retention

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Faculty Involvement is Key to Improving Student Retention

- Creating a faculty focus to balance strong academic rigor and appropriate student support
- Promoting faculty engagement to address retention planning and program implementation
- Implementing effective programs that stress faculty awareness and shared understanding of expectations and engagement
Missouri University of Science and Technology
What is Missouri S&T?

- A Top 50 Technological Research University
- 6,815 students: 5,205 Undergrad, 1,610 Graduate
- 90% majoring in Engineering, Science, Comp. Sci.
- Ave. Student ACT/SAT: upper 10% in nation
- +60% of Freshmen from upper 20% of HS class
- 20% Out of State Enrollment
- 96% 5-Year Average Placement Rate within 3 months
- Ave. Starting Salary in 2009: +$57,000
- Highest Starting Salaries of all Midwestern Universities*
Benchmarking

Did Missouri S&T Have A Retention Problem?
S&T Compared to National Data

- S&T: 12% (from 18% since 2001) “drop out” rate after the first year
- 23.8% “drop out” rate for public Ph.D. granting institutions (July 2001 ACT National Collegiate Dropout and Graduation Rates report)
- 18.6% “drop out” rate for “selective” institutions (average ACT 22-27) (July 2001 ACT National Collegiate Dropout and Graduation Rates report)
- 31% of all students enrolled in science, mathematics, engineering and technology either transferred to a non-SMET degree or dropped out of school completely. (September 2001 Center for Institutional Data Exchange and Analysis)
- 13.4% of students at the participating institutions ranked as highly selective (ACT>24) dropped out. (September 2001 Center for Institutional Data Exchange and Analysis)
## Benchmarking: www.collegeresults.org

<table>
<thead>
<tr>
<th>College Results Retention - Progression</th>
<th>Grad Rate</th>
<th>4-Year Grad Rate</th>
<th>5-Year Grad Rate</th>
<th>6-Year Grad Rate</th>
<th>1st Year Retention Rate 2005 (Full-Time Students)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rensselaer Polytechnic Institute</td>
<td>82.20%</td>
<td>63.90%</td>
<td>80.60%</td>
<td>82.20%</td>
<td>93%</td>
</tr>
<tr>
<td>Worcester Polytechnic Institute</td>
<td>75%</td>
<td>63.90%</td>
<td>74%</td>
<td>75%</td>
<td>90%</td>
</tr>
<tr>
<td>Stevens Institute of Technology</td>
<td>73.10%</td>
<td>36%</td>
<td>70.10%</td>
<td>73.10%</td>
<td>90%</td>
</tr>
<tr>
<td>Clarkson University</td>
<td>70.10%</td>
<td>50.90%</td>
<td>68.20%</td>
<td>70.10%</td>
<td>81%</td>
</tr>
<tr>
<td>Colorado School of Mines</td>
<td>68.40%</td>
<td>40.10%</td>
<td>65.10%</td>
<td>68.40%</td>
<td>86%</td>
</tr>
<tr>
<td>Illinois Institute of Technology</td>
<td>67.60%</td>
<td>40.10%</td>
<td>64.10%</td>
<td>67.60%</td>
<td>85%</td>
</tr>
<tr>
<td><strong>MISSOURI S&amp;T</strong></td>
<td><strong>63.10%</strong></td>
<td><strong>21.30%</strong></td>
<td><strong>54.50%</strong></td>
<td><strong>63.10%</strong></td>
<td><strong>87%</strong></td>
</tr>
<tr>
<td>Michigan Technological University</td>
<td>60.90%</td>
<td>25.70%</td>
<td>55.40%</td>
<td>60.90%</td>
<td>81%</td>
</tr>
<tr>
<td>Florida Institute of Technology-Melbourne</td>
<td>57.30%</td>
<td>40.30%</td>
<td>55.40%</td>
<td>57.30%</td>
<td>77%</td>
</tr>
<tr>
<td>New Jersey Institute of Technology</td>
<td>54.50%</td>
<td>19%</td>
<td>46.60%</td>
<td>54.50%</td>
<td>80%</td>
</tr>
<tr>
<td>New Mexico Institute of Mining and Technology</td>
<td>53.60%</td>
<td>22.40%</td>
<td>45.10%</td>
<td>53.60%</td>
<td>68%</td>
</tr>
<tr>
<td>Polytechnic University</td>
<td>49.50%</td>
<td>28.90%</td>
<td>46.20%</td>
<td>49.50%</td>
<td>76%</td>
</tr>
</tbody>
</table>
Missouri S&T
Retention Model

- Student Information/Profile
- Academic Advising
- Student & Faculty Engagement
- Student Programming
- Faculty Development
- Student Academic Resources

Missouri S&T
Student Academic Resources
Academic Advising
Student & Faculty Engagement
Student Programming
Faculty Development

Missouri S&T
Student Information/Profile

Educational Policy Institute
The Retention Committee serves as an advisory committee appointed by the Chancellor to address key issues related to improving student retention and student academic success.
Faculty Engaging Retention Strategies

Retention Committee

- Faculty for each division
- Admissions
- Registrar
- Financial Aid
- Campus Housing
- Student Activities
- Counseling Center
- Orientation
- Faculty Training Director
- Faculty Senate Leaders
- Execs: Academic, Student & Enrollment Affairs
- Advising
- Info Tech
- Institutional Research
- Minority Programs
- International Affairs
- Cashier/Billing
- Pre-College Programs
- Reporting Services
Retention Assessment Instruments

1. New Student Survey
2. CIRP
3. NSSE
4. HPI
5. Opening Week Survey
6. Freshman Success Chain
7. Student Satisfaction survey
8. Retention Audit and Phone Survey
9. ACT/AIM factor analysis
10. COC Survey
11. Senior Survey
12. Freshman retention by department
13. Exit Survey (from Registrars and Counseling office)
14. Academic Alert Reports
2009-10 Retention Committee’s 5 Common Themes Relative to Improving Retention:

1. **Financial Issues**
2. Need to Increase Student Interactivity and Campus Engagement
3. **No Central Unit focusing on Promoting Parental Engagement**
4. Need to improve Academic Advising
5. **Scattered Student Support Services creates Problems**
6. Continued Promotion of Student-Faculty Engagement Activities
2009-10 Retention Committee
Recommended Strategic Plan Actions

1. Focus new financial aid resources to increase need-based student financial aid availability.
2. Improve strategies for early, intensive and continuous intervention for students. (Student-faculty engagement, academic advising, academic support services, disability support services, peer mentoring, utilization of the academic alert system, etc.)
3. Centralize the parent and family support/outreach services to improve communication and campus engagement.
4. Establish a central information center for student academic support services, staffed with trained professionals.
5. Reconsider the development of a One-Stop-Shop facility for enrollment and advising services.
6. Continue and enhance academic advising support and training.
7. Enhance programs that promote student-faculty interactions.
Faculty Engagement: Intrusive Intervention

General Chemistry Project Description

800 freshman general chemistry students were provided Academic Alert, study strategies assessment, and effective academic practices resources as supports for meeting the requirements of the course.
Intrusive Intervention Project

Outcome Summary

Fall Semester 2009

Number of Students Enrolled in Course: 800

Students Failing (D/F) Course After 4 Weeks: 27.9%

Students Failing (9.6% F) Course at End of Semester: 15.9%

72% of Participants Found the Intervention Beneficial
Faculty Engagement: LEAD

Learning Enhancement Across Disciplines (LEAD)

• Faculty & peer-mentor led learning communities
Unposed photos of cooperative learning and social dynamics in the introductory physics, math, & chemistry LEAD Learning Centers

Suggestions
Cookies
Pop corn
Appropriate operating days/hours
Easy access & EGRESS
Zero or small % points for participation
Learning Enhancement Across Disciplines
Learning Centers and Faculty Associates

Number

F00 F01 F02 F03 F04 F05 F06 F07 F08 F09

Semester

LEAD Faculty
Learning Centers
# LEAD Learning Centers in Fall 2009

<table>
<thead>
<tr>
<th>College Algebra</th>
<th>General Chem I</th>
<th>General Physics I</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Trig</td>
<td>General Chem II</td>
<td>General Physics II</td>
</tr>
<tr>
<td>Calculus I with Analyt Geo</td>
<td>Intro Quantum Chem</td>
<td>Engineering Physics I</td>
</tr>
<tr>
<td>Calculus I for Engineers</td>
<td>Chem E Material &amp; Energy</td>
<td>Engineering Physics II</td>
</tr>
<tr>
<td>Calculus II for Engineers</td>
<td>Chem Engr Fluid Flow</td>
<td>College Physics I</td>
</tr>
<tr>
<td>Calculus III</td>
<td>Continuous Mass Transfer</td>
<td>Classical Mechanics</td>
</tr>
<tr>
<td>Intro Physical Geology</td>
<td>Elementary Fluid Mechanics</td>
<td>Intro Nuclear Engineering</td>
</tr>
<tr>
<td>Discrete Math for Comp Sci</td>
<td>Water Resources Engineering</td>
<td>Fundamental Nuc Engr</td>
</tr>
<tr>
<td>Elementary Spanish</td>
<td>Intro Computer Engineering</td>
<td>Statics</td>
</tr>
<tr>
<td>Spanish Reading &amp; Comp</td>
<td>Digital Circuit Design</td>
<td>Mechanics of Materials</td>
</tr>
<tr>
<td>Elementary Russian</td>
<td>Circuit Analysis I</td>
<td>Dynamics</td>
</tr>
<tr>
<td>Russian Literature I</td>
<td>Electromechanics</td>
<td>Machine Dynamics</td>
</tr>
<tr>
<td>Russian Phonetics</td>
<td>Communication Systems</td>
<td>Automatic Control Systems</td>
</tr>
</tbody>
</table>
Since 2005, the Academic Alert System has helped to:

✓ Improve communication among Missouri S&T students, instructors and advisors;
✓ Reduce the time required for students to be informed of their academic status;
✓ Inform students of actions necessary by them in order to meet the academic requirements in the courses they are taking.
Academic Alert Project Outcomes

First and second year students receive the majority of academic alerts.

The majority of students who receive an academic alert make improvements in the course in which they received the alert.
Faculty Engagement: Advising Office

- Advising Academically Challenged Students
- Advisor Training/Campus Advising Conferences
- On Track/Peer Mentoring Program
- Advisor Recognition Program
Advising Office Program Outcomes

14 Academic Advising Conference Sessions Averaging 25 Attendees per Session for AY 2010

AY 2009/2010:

160 deficient advisees

44 advisees returned to good academic standing
Experiential Learning: Faculty Advisors to Solar Car Design Team

Tulsa, OK to Naperville, IL
2010 American Solar Challenge
Faculty Engagement: Institutional Strategic Planning

Goal: 90% of Graduates w/ Experiential Learning

- AY '08/'09: # Graduates 1291, # w/ Exp Lrn 728, Percent w/ Exp Lrn 56.4%
- Fall '09: # Graduates 434, # w/ Exp Lrn 189, Percent w/ Exp Lrn 43.6%
Faculty Engagement: CERTI
Center for Educational Research and Teaching Innovation

Faculty Learning Communities
- Active Learning (Effective Classroom Practices)
- Cyber Learning (Clicker Application)

Collaborative Learning
Experiential Learning
Technology-Enhanced Learning
Educational Research
Questions?

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