Actuarial Science Program

Strategic Plan – Draft 2

Program Facts:
● 270 undergraduate students; 25-30 master’s students
● 60 freshmen admitted annually
● Post-calculus courses: 7 act sci, 2 math, 5 finance
● 80+ enrolled in upper-division act sci classes
● 2 full-time act sci faculty
● State Farm Research Center
● Corporate Advisory Council

Peer Institutions:
● University of Michigan
● University of Wisconsin
● University of Iowa
● Purdue University

SWOT Strengths:
● Size – largest act sci program in U.S. (per U/G students)
● Excellent reputation and quality
● Good cross-disciplinary relationship with Finance Dept.
● Strong relationships with companies
● State Farm Research Center
● Strong student placement (permanent and intern)
● Provide companies / industry with what they want / need

Weaknesses:
● Lack of resources (especially faculty)
● Class sizes far too large
● Program relies heavily on one person (Director)
● Graduate program not as strong as U/G program
● Light research focus (function of history, admin.)

Opportunities:
● Create an act sci Ph.D. program (or option within math)
● Build additional close corporate relationships
● Expand cross-disciplinary relations (econ, soc sci)
● Build into a “math in the soc sciences” program

Threats:
● Program diminishment due to inadequate resources
● Excessive growth lowers average student profile
● Loss of program director

Goals / Initiatives: See opposite.
## Summary of Initiatives by Type

**Short-, Medium-, and Long-Term**

<table>
<thead>
<tr>
<th>Initiatives</th>
<th>Short-Term (1 year)</th>
<th>Medium-Term (1-3 years)</th>
<th>Long-Term (3+ years)</th>
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<tbody>
<tr>
<td><strong>Courses</strong></td>
<td><em>Introduce a pool of three new junior-senior level topic courses: Casualty; Pension; Capstone</em></td>
<td>Consider offering act sci courses more frequently, to reduce class sizes</td>
<td>Expand course offerings into more cross-disciplinary topics – e.g., financial mathematics, mathematics of risk</td>
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<td><em>Coordinate course offerings with evolving CAS / SOA approach to exams</em></td>
<td>Consider offering a capstone-type course to U/Gs earlier in the program</td>
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<td><strong>Program</strong></td>
<td><em>Introduce an Act Sci Corporate Advisory Council</em></td>
<td>Improve program resources by hiring a third full-time act sci faculty member</td>
<td>Improve program resources by hiring a fourth full-time act sci faculty member</td>
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<td><em>Introduce an Act Sci &amp; Fin Math seminar</em></td>
<td>Hire lecturers as necessary to cover courses</td>
<td>Increase U/G act sci enrollment by 50%</td>
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<td><em>Implement a program to market act sci to high schools</em></td>
<td>Increase corporate funding to allow continued and increased program support</td>
<td>Improve graduate (master’s) program</td>
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<td><em>Develop an act sci marketing webpage</em></td>
<td>Enhance external relationships</td>
<td>Enhance U.S. students’ presence in Master’s program</td>
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<td>Develop online versions of courses for online master’s program</td>
<td><em>Implement a student-practicing actuary mentoring program</em></td>
<td>Introduce a Ph.D. program in Act Sci &amp; Fin Math</td>
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<td><strong>Research</strong></td>
<td>Introduce a summer Research Experience for Graduate Students</td>
<td>Increase funding for act sci RAs</td>
<td>Fund and establish an Institute for Actuarial Research</td>
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<td>Create a joint-research relationship with one or more companies</td>
<td>Offer professional actuarial exam preparation seminars online</td>
<td>Publish research in-house, e.g., via a journal, online working paper archive, etc.</td>
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<td><strong>Other</strong></td>
<td><em>Introduce an Actuarial Science Problem-of-the-Week</em></td>
<td>Introduce a summer act sci &amp; fin math seminar for HS teachers</td>
<td>Develop approaches to help improve non-quantitative skills of students – especially communication skills</td>
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Key: *Italics and bold* indicates the initiative has been implemented; *italics* indicates the initiative is in the process of being implemented.
**Key Goals**

- **Research**
  - Create a joint-research relationship with one or more insurance organizations.
  - Publish research in-house, including an online peer-reviewed actuarial science journal, a periodic newsletter, and a working paper series / archive.
  - Establish a relationship with NCSA to enhance computational financial and actuarial mathematics research

- **Education**
  - Increase faculty resources in order to offer current classes more frequently, reducing class sizes to reasonable levels.
  - Offer special topics courses; these will likely be supported (financially and via teaching resources) by insurance companies and consulting firms.
  - Introduce a Ph.D. program in actuarial science and financial mathematics.
  - Offer an act sci master’s degree online, along with online professional exam preparation seminars.
  - Broaden the program to be a “math in the social sciences” program – cross-disciplinary with finance, economics, political science, etc.

- **Engagement / Service**
  - Introduce a summer act sci and financial math seminar for high school teachers.
  - Frequent seminars involving, and co-sponsored with, regional insurance and financial organizations.

- **Economic Development**
  - Attract one or more additional firms to establish a presence in the Research Park, taking advantage of talented student and faculty pools.

**Assessment of Distinctive Competencies**

- **Research**
  - Relationship with State Farm Research Center (on campus).

- **Education**
  - Practical business experience of faculty.

- **Engagement / Service**
  - Relationships with, and proximity of, significant insurance and financial industry organizations.

- **Economic Development**
  - Research Park, and State Farm Research Center.

**Most Promising Interdisciplinary Areas**

- **Research**
  - Finance Dept., with respect to financial and actuarial/insurance mathematics.
  - Economics Dept., with respect to dynamic economic analysis.

- **Education**
  - English / B&TW, with respect to developing opportunities for enhancement of quantitative students’ communication skills.
  - Various social sciences, with respect to a potential “math in the social sciences” model.

- **Engagement / Service**
  - Finance Dept., with respect to consulting and public policy analysis.

- **Economic Development**
  - NCSA, with respect to developing actuarial systems software.