Indiana State University

2005 - 2006 Academic Annual Report

Department of Math & Computer Science

Year in Review

Accomplishments

As you have heard, increasing public awareness of Indiana State University's accomplishments is crucial to building student enrollment, influencing policy makers, and developing a place of pre-eminence in the Midwest. What do you consider to be your department's accomplishments for the 2006-2007 year that will contribute to this effort? [Please list in priority order and limit to no more than 8.]

1. The department faculty published several research articles in peer-reviewed international journals. 2. One of our faculty members was invited as a plenary speaker at a conference in Australia. One of our faculty members visited Universities in South Korea and New Zealand on invitation for research collaboration. Two of our faculty members visited Chinese Universities on invitation, for research. 3. Some of the faculty of the department are the organizers of the Academic Competition of the National Middle School Science Bowl for the region of Indiana and the National Science Bowl. One of the faculty members helps the local Schools with coaching for Mathcounts, ARML(American Regions Math League), AMC(American Mathematical Competitions), and AIME (American Invitational Mathematics Examination). 4. Our Math Education program obtained the NCATE re-accreditation this year. Our education faculty is involved in a tutoring (SMART) program at DeVaney elementary School. 5. Some of our graduate students and a faculty member paricipated in inWic 2006, Indiana Women in Computing Conference in Spencer, Indiana, Feb 3-4. 6. Our graduate and undergraduate students participated in the undergraduate/graduate research showcase of ISU and won the first prize for their poster presentation. 7. The Center for Mathematics Education is jointly affiliated to our Department as well as with the College of Education. 8. Several of the faculty members gave presentations at national and international conferences.

Research and Scholarship

What is your assessment of accomplishments in the area of research and scholarship that is focused primarily on contributions to practice and discipline-based scholarship? Are you satisfied overall? In which areas do you feel your department does particularly well? In which areas do you feel your department needs to improve?

The faculty members published several original research articles in interationally reputed journals. The department faculty published 18 scholarly articles in refereed publications in 2005-2006. Six more papers are submitted for publication. The faculty of the department made 10 seminar/conference presentations, nationally, during this period. Four of our faculty memebrs made presentations at international scholarly conferences outside USA. One of our Faculty members was an invited plenary speaker at Australian Conference on Network Topology. This was funded by the organizers and this is a credit to the research achievements of our department. One of our faculty members was invited to Korea and New Zealand for joint research. Two faculty members visited universities in Chinese universities for research on invitation. Several of our faculty members refereed scholarly papers for internationally reputed journals related to Mathematics, Computer Science and Mathematics Education. The faculty members also wrote scholarly reviews of published research articles. Regular seminars were organized in the department.

Grants, Contracts & Off Campus Professional Service

What is your assessment of accomplishments in the area of grants, contracts, and off campus professional service? Are you satisfied overall? In which areas do you feel your department does particularly well? In which areas do you feel your department needs to improve?

The department faculty are involved in obtaining external grants totaling approximately $940,000. some of these grants are continuing frant from the previous years. Some of the department members are also Co PIs for the Noyce grant. One of the faculty members is a co-PI for a Million dollar NSF STEM grant application. Another faculty member is a co-PI for a Bio-informatics grant application. The department members were involved in 119 professional activities (refereeing for professional journals, reviewing of published papers, professional consulatants, and others). We would like to build on the existing research strengths of the department. We would also be looking for grants for organizing conferences in specialized fields.

Teaching

We would like to highlight innovative approaches to teaching. Has your department developed any pedagogies or practices you'd like to share with us? Please describe briefly.

Several Mathematics and Computer Science web based courses were offered in 2006. A total of 11 courses are offered on the web. Math 102 Quantitative Literacy and Math 111 intermediate algebra were some of the courses offered on the web. We also participated in learning community initiatives for Math 131, Calculus I. The department started a program called MATHBUCKS, a one hour meeting, once every month, in which the students listen to an interesting talk related to Mathematics, and try their hand at a challenge set of problems in mathematics. In the Mathbucks program, there were talks on Sudoku, A mathematical card game, and Deal or No Deal. This was funded by First Year Experience of ISU.

Course Scheduling/Enrollment Management

What have been your greatest challenges in scheduling courses to meet student needs this year? How were you able to overcome them?

The greatest challenge has been to accommodate the needs of other departments. Math and CS offers several service courses serving the needs of other departments. The scheduling had to be done keeping the available timings for the students from other departments. We also offer several remedial mathematics courses. One of the sections of Math 102 is a large section with more than 150 students. Teaching this section and making sure that the students succeed is always a challenge. Students in large sections always feel that they are not getting individual attention. The department also offers help sessions for the students in the Mathematics learning Center. The department also developed a capstone Mathematics course.

Outreach

What are the outreach opportunities for your discipline? (non-traditional modes of delivery and timing, etc)

Several of our courses are also offered on the web. Math 102, Math 111, Math 301, CS 260, CS 479, are some of the courses that are offered on the web. We hope to increase the number of web-based offerings based on the needs and feasibility.

Strategic Initiatives

Development Activities

What steps have you taken to support development activities in your department? How can

your efforts be supported?

The Department has initiated the process of evaluation and assessment of its undergraduate Math and CS programs. The assessment reports were prepared and submitted to the University. At present the Masters program in Mathematics has a concentration in Computer Science. The Department felt that a Masters degree program in Computer Science would attract many more students. With this in view the department developed a proposl for a Masters degree program in Computer Science. It is now with the Academic Affairs of ISU and is expected to be sent to the State soon. This effort can be supported by the University by expediting the process of submission to the State.

Community Engagement I

Please summarize your faculty's efforts in community engagement this year.

Some of our faculty are engaged in preparing area school students for mathematics competitions at state and national level.Faculty also actively organize/participate in the organization of MathCounts for Middle School, Regional Middle School Science Bowl, Regional High School Science Bowl, and ARML contests. ICTM jouranl is published from the Department and faculty of the department are engaged in this. This helps the visibility of our department in the community. Some of the faculty acted as judges at the Intel Science Fair held in Indianapolis. Our faculty also participate in the University Honors program.

Experiential Learning

We are interested in hearing about any innovative approaches you might have taken to incorporate experiential learning into your course or departmental work this year.

Several of our Computer Science and Information Technology students are engaged in internships with industry. Our Math Education students student-teach at nearby High Schools as part of their training. Majority of our students are employed on the campus of ISU in various computer oriented positions. One of our graduate students taught Math 111A, Intermediate Algebra, in our department.

Future Goals

Future Goals

The University is highlighting experiential learning, community engagement, and eminent programs as aspects of our campus that will attract students and resources. How is your department planning to contribute to these strategic initiatives in ways that will help ISU be recognized as a Pre-eminent University?

We would like to see the department build a reputation for its programs, so that, High School graduates would want to join our undergraduate programs and college graduates would want to join our graduate programs. We would also like to see increase in the research output and scholarly activities of the department. We would also like to offer applied mathematics, statistics, and actuaries tracks for our students, so that the students can specialize in these fields and have better job opportunities.

Feedback

This section is to allow you to share your ideas for enhancing enrollment or dealing with budget and other challenges facing the administration.