Name: Morgan C. Benton Date: Tuesday, June 2, 2009

Department of Integrated Science & Technology Faculty Activity Report

2008-2009 Academic Year

Teaching Activities

Courses Taught Summer 2008- Spring 2009

Course #	Section #	Semester	# of Credits	# of Students	Team Members
GISAT 160	0003	Fall	3	25	Pappas (lead), P. Henriksen, Ridings, Barnes, Papadakis
ISAT 340	0001	Fall	3	18	Tony Teate
ISAT 348	0001	Fall	3	6	
ISAT 480	0007	Fall	3	1	
ISAT 492	0024	Fall	2	4	
ISAT 252	0001	Spring	3	18	Marchal, Cushman
ISAT 252	0002	Spring	3	20	Marchal, Cushman
ISAT 252	0005	Spring	3	17	Marchal, Cushman
ISAT 348	0001	Spring	3	2	
ISAT 493	0005	Spring	3	4	

NOTE: Officially I had a full course release to work on the ISAT website both fall and spring, but taught a full load (actually more than full if one counts independent studies) both semesters.

Curriculum Development

I experimented with a **new style for teaching introductory programming courses in ISAT 252** this spring. The goals of the experiment were to:

- Increase intrinsic motivation to study programming
- Remove barriers to learning caused by extrinsic motivators (i.e. grades)
- Foster a sense of competence in students (referred to by Bandura as “self-efficacy”)
- Foster a life-long commitment to learning of programming skills and problem-solving concepts

The mechanism for doing this was somewhat controversial—**students were allowed to select their own grade in the course**, no strings attached. The results of this experiment will be the subject of a paper that I plan to write and submit for publication by the end of this summer. Informally, however, the experiment appears to have been quite successful. Participation and enthusiasm were above average as was the overall quality of the semester projects that were submitted. I plan to share the results of the study, once analyzed, with the full ISAT faculty either at the summit in August or in early fall. I also plan to form a group of interested faculty to discuss how these techniques might be applied in our other courses.

I also continued in the development of a **new short-term summer study abroad program to Japan**. I was able to expand the range of course offerings and also spent a great deal of time translating documents into Japanese for my partners in Japan.

I also participated in the **development of a data-mining course that will be delivered in Malta as part of the SERM program** that will begin there next fall.

Senior Project Advising: 7+ hours/week

I advised four students to the successful completion of three senior projects this year. I met with each project team individually for a minimum of one hour each week. In addition we had a joint team meeting every Wednesday throughout the year that lasted from 8PM to midnight. As needed we also spent significant time together outside of these regularly scheduled times. As such, the average spent with my senior project students was probably over 7 hours per week.

Teaching-related Professional Development

I performed a Teaching Analysis Poll (TAP) in my classes both fall and spring to find out from my students what things I was doing well, and what things that could be improved. I received one on one counseling from the TAP consultants who performed the TAPs.

I attended a Japanese language class (9/10/08) in order to learn about how Japanese language education is done on campus at JMU.

I attended a seminar for study abroad coordinators to learn about how to run an effective and safe program (9/19/08).

I attended two sessions at this past May's CFI May Symposium. I attended a session on motivation (5/11/09) run by Kenn Barron of the JMU Psychology Department and also Coordinator of the JMU Motivation Research Institute. I also attended a session (5/15/09) on JITT (Just In Time Teaching) facilitated by professor emeritus Jim Benedict, also of the Psychology Department.

Professional Service Activities

JMU Teams & Committees

Departmental Teams & Committees

C&I Committee

I represent the IKM Team and vote on matters that come before the committee.

Recruiting Committee

I am the person primarily in charge of organizing and running the ISAT Video Contest. I also assist in writing copy, staffing events, and otherwise contributing to the efforts of the team. I was elected to chair this committee next year.

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Foundations Committee

I represent the IKM Team on this committee, primarily for ISAT 252. I will be leading the effort to write the CAR for ISAT 252 over the summer and in the fall.

IKM Team

The team was not particularly active this year due to the job search we had under way. I was elected to lead this team next year.

SCOTS Team

I don't teach any courses in this sector, but I'm a fairly regular participant at meetings and contributed this year to the presentations that the team made about 131/231 in the faculty meeting.

Assessment Committee

I did not participate much second semester, but I've been primarily responsible for working on procuring portfolio software for use in the planned portfolio-based assessment of the ISAT program that is scheduled for next spring.

IKM Faculty Search Committee

I was a member of the team that hired Nicole Radziwill.

ISAT Golf Challenge Committee

I handled all of the web-based registration and publicity as well as participating in the event.

ISAT Webmaster

I put significant time into doing an analysis of the ISAT web presence with Lynn Radocha. The information architecture that we created was pretty much exactly the same one that Christine Letsky-Anderson presented to the CISAT Leadership Council in January/February. I have had a pretty heavy influence on the direction of all of the web pages in the College as well as the department. Of course I also handled the day-to-day change requests. The long-awaited full overhaul should begin to go live late this summer.

College Teams & Committees

Computer Science Faculty Search Committee

I served as the outside member on the committee that was seeking to hire a web person for the CS Department. As it turns out, there was not a line available to hire anyone, but the committee vetted all the candidates, brought them to campus and was ready to recommend one of them.

University Teams & Committees

CFI TAP Consultant

I served as a TAP (Teaching Analysis Poll) consultant for the second year in a row. I provided feedback to faculty in Business, Education, CSD, and CS this year. A number of the relationships I've formed as a result have continued to be productive.

Asian Studies Minor

I have participated on a team of faculty that oversee JMU's minor in Asian Studies. As this was my first year on the committee, I didn't do much other than attend meetings and events held by the various faculty and also help them recruit students for the minor and for the study abroad programs offered by faculty who teach in the minor.

Advising on Web Strategy to Andy Perrine

Andy Perrine came and met with me to discuss how to take more advantage of the JMU website. We discussed website metrics and how to measure the impact coming out of our website traffic.

Professional Consulting Activities

PPMRN Website

I continue to consult on the development of the 2000+ member Public Performance Measurement and Reporting Network's website. This activity gives me experience and credibility when instructing students in the hazards of building and deploying larger scale web applications.

Morphatic, Splashkit and 9Davine

Through a relationship with these businesses I've been involved in the analysis, design, development, and deployment of approximately nine websites in the past year.

Scholarship and Professional Development Activities

Conference Presentations

AMCIS 2009, Toronto

I presented a paper on using the Transtheoretical Model of Behavioral Change in Systems Analysis.

Grant Proposals

NextStep Site Feasibility Calculator for Behind-the-Meter Wind Power Systems: $495,235

I was Co-PI along with James Wilson on this funding opportunity. Maria Papadakis and Jon Miles also played a significant role. The proposal was not funded, although we are currently looking for others who may be able to fund part of it at the state level using stimulus funds.

Other Scholarly Activities and Student Involvement

I am developing a set of skills and talents needed to build and deploy an open-source online learning management system that I'm calling UMatter2Us. Many of my scholarly activities are related to this either directly or indirectly.

Ruby On Rails Development

Over the past year I've begun to learn how to develop online applications using the Ruby On Rails application framework. This has entailed learning the Ruby programming language, the ActiveRecord ORM (Object Relational Mapping) engine, and learning the Rails application framework. I've built a number of smaller projects, including helping Michael McMahon, one of my seniors, to build an application we'll shortly be deploying on behalf of LOTI (Least of These International).

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Version Control with Subversion

Subversion is an open-source version control system, which is an online repository that allows many people to collaborate in the building of any set of files. Almost all professional software development these days uses version control. I anticipate being able to introduce the basic concepts and practices associated with VCS to my students in my courses during the fall. I have been using Subversion successfully with all of my senior project students this year. It takes a while to develop the skills and understand how to host and deploy a version control infrastructure.

Virtual Server Management

Virtualization is the set of technologies that allow full operating systems to run inside of other ones. This technology has revolutionized the server management industry and promises to bring great benefits to desktop management as well. I installed VMware Server on my research server and am running two Linux and one Windows 2008 server inside of it.

Windows Server 2008 and SQL Server 2008 Management

I've taught myself to install, manage and deploy a Windows 2008 server. I'm using these skills to support students who are working with me on the NextStep economic calculator project. This server is running inside of a virtual server environment and also supports the FTP accounts of the students in ISAT 252. In the fall I plan to use this server as a location where students in 340 can deploy projects that will be live for others to see.

Linux Server Management

I've also been learning how to manage a Linux server. I use my research server as a hosting platform for the students who take ISAT 348 with me so that they can begin to understand what it means to take an online application from conception through to deployment.

TRAC

TRAC is a web-based collaboration platform for building software. It interfaces with the Subversion version control system and allows communication between team members and assignment of tasks and responsibilities as well as the reporting and tracking of bugs. I've built and deployed TRAC both on Windows and on Linux and will be training students in how to use it as we move forward on projects together.

Dojo Toolkit Javascript Framework

One of the main drivers of innovation on the web currently is javascript frameworks. There are about eight popular frameworks on the market today, of which the Dojo Toolkit is one of the major ones, and the only one to explicitly consider accessibility issues for website visitors. I have worked to become a member of the Dojo community and have actively participated in development of the framework by submitting bug reports, patches, and other assistance to the members of the community. I have also used Dojo as a way to introduce javascript programming concepts to the students of ISAT 348 and showed them how to build AJAX-style applications.

UMatter2Us

UMatter2Us is the learning management system that I'm building with the help of my students. Major forward progress was made this year by Thomas Fadoul, who worked on this system as his senior project. We got the information architecture completed as well as screen designs for some of the major workflows. The first working prototypes have been deployed at our live server and our basic user management interfaces have been implemented. We hope to have enough done to actually get students using it for simple tasks by the late fall. Thomas Haney will be taking this on in the coming year as his senior project.

General Comments

My Most Outstanding/Satisfying Activities for 2008-2009

Far and away the achievement **I'm most satisfied with is the learning experience I was able to create for my ISAT 252 students** this spring. I took a calculated gamble that removing grades as an extrinsic motivator—either as punishment or reward—would be an effective way to get students involved with programming material. This gamble has paid back unexpectedly large dividends. Although I'm definitely still in the early stages of this research, I feel that I'm onto a style that could have an enormous impact on education not just in my classes but within a broader context. My next step is to put all of the theory that underpins the pedagogy into a format that allows my colleagues to understand and appreciate the power that removing extrinsic motivators can have on the learning in a course.

I have begun to develop a network of interested colleagues around campus to offer input and collaborate on this project. I can see that as I begin to understand the variables that make this methodology more or less successful that I could begin to offer seminars through the Center for Faculty Innovation, within departments, and also outside the university.

On a parallel track with the pedagogical exploration, **I'm also very satisfied with the progress I've made in building UMatter2Us**, an online learning management system which will help other instructors make these practices more accessible in their teaching. I've been able to catch the imagination of another student who will continue to work on these tools with me over the next year.

What we accomplished as a department in 2008-2009

We hired three people. We finished a new curriculum, instituted a new leadership structure, and successfully transitioned leadership for the GS program. We raised significant funds for the Dick Roberds scholarship. We increased the number of students in the ISAT program. We began planning to assess our performance at "integration" as defined in the new ISAT program goal. We completed the planning for the SERM program in Malta.

Priorities for improvement as a department in 2009-2010

As I've shared, I have a deep concern that students feel that they have no advocacy at the departmental level. It is very important that students feel valued and also feel like they will have a sympathetic ear among the faculty of someone who will be able to act on their behalf. I have come across a number of

students who have what I perceive to be legitimate complaints, but who fear to take any action for fear of retribution from the faculty member in question. This is not a healthy situation.

Suggested Discussion Topics for the August 2009 Summit

I was alarmed to learn that JMU's students drink far more alcohol than the average for US colleges and universities. I knew they drank a lot, but I didn't realize that it was more than at other schools. The JMU Counseling Center does a very good presentation not just on drinking but on many of the other pressures that our students face. I think it would be an excellent use of our time to have the Counseling Center come and do the presentation for our faculty so that we can remain in touch with our students. We had a student commit suicide this year, and another had an outburst in class. I'm not suggesting that this somehow was the fault of our faculty at all, but it would be very healthy for us as a faculty to have a discussion about what we can do to be more sensitive and supportive to our students in ways that may help them deal better with the pressures that they face. It might also be a time to discuss setting up some sort of more formal advocacy apparatus for our students, or at least publicizing what we have better.

Also I'd like an opportunity to talk about my experiment in teaching with the faculty. As Mike Deaton said at our recent IKM meeting, when ISAT was created we decided to make a commitment to remaining on the cutting edge of pedagogy. I realize that the approach I took this spring is unorthodox and that there are at least a couple of faculty who have reservations about my methodology. I'd like to present the theory and data upon which the pedagogy is founded and also the results of this semester's experience with the ISAT 252 students. I have several goals for this presentation: 1) to foster discussion among the faculty about pedagogy, 2) to invite ongoing conversations/collaborations among those people who are interested in trying out some version of this approach to teaching, 3) to make those who are not interested in trying this aware of the effort and the research upon which it is based.

Alignment of Faculty Activities with Departmental Goals

Increase the number and diversity of students in the ISAT undergraduate degree programs.

- ISAT Recruiting committee
    - Organized ISAT Video Contest
    - Proposed putting ads on JMU buses
- Work on the ISAT website to focus on student recruitment
- Instrumental in adding a new female faculty member to the IKM team

Continue to develop and implement a comprehensive curriculum assessment process.

- Worked to help identify and obtain portfolio management software for the assessment committee

- Served as a TAP consultant for CFI, had TAPs performed in my classes, and encouraged fellow faculty to do so as well

Support and recognize excellence in teaching and education research.

- Ran my own study to explore the strengths of self-grading in introductory programming courses
- Participated in a Madison Teaching Fellows focus group to discuss the GenEd program

Develop and maintain a comprehensive departmental strategic planning process.

- Note taker at departmental meetings

Continue to support and grow the ISAT Master's program.

- Worked with Barb Gabriel and two MSISAT students to develop promotional videos for the ISAT website

Develop and maintain appropriate organizational structures.

- Discussed the creation of a student advocacy committee with the Department Head and Tom Benzing to address a perceived deficiency in our advising/service to students

Secure and maintain necessary financial and physical resources.

- Participated in a grant proposal to DOE
- Worked with Steve Frysinger to make better use of lab space for furthering departmental projects

Support and recognize research, scholarship, and service activities.

- Worked with Emil Salib to plan the integration of Telecom content into the sophomore year IKM courses in order to help boost the number of students who move into that sector
- Volunteered support of students doing new research in wireless sensor networks

Faculty Anticipated Activities Plan for 2009-2010

Teaching Activities—Estimated percentage of workload: 45%

Courses I expect to teach: GISAT 160, ISAT 252, ISAT 340, ISAT 348, ISAT 492, ISAT 493

I also plan to continue research into the pedagogical techniques I began working on this past semester.

Professional Services Activities—Estimated percentage of workload: 25%

Anticipated service activities:

- Department Level
  - ISAT websites
  - IKM Team Lead
  - Recruitment Committee Chair

    - IHS faculty sponsor
    - Other committees: C&I, Assessment, Foundations
- College Level
    - Consulting on usability/design issues with college websites
- University Level
    - CFI TAP Consultant
    - Organizing study abroad trip to Japan

Scholarship and Professional Development Activities—Estimated percentage of workload: 25%

- Continued development of UMatter2Us
- Continued development of the new pedagogical style begun this past year

Other Activities—Estimated percentage of workload: 5%

- Continued work on websites for external clients

Faculty Conflict of Interest Disclosure for 2008-2009

Companies/organizations for which I have consulted this year

- American Home Bank Reverse
- Public Performance Measurement and Reporting Network
- Institute for National Security Analysis
- Splashkit
- 9Davine
- Tony Doggett

Companies which I own or have significant financial interest

Morphatic

Other areas of potential conflict of interest

N/A