

2005-2007 LITRE Grant Proposal

1. Project Title:

Integrating Wireless Laptops in an IT Capstone Classroom

2. Project Coordinator:

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3. Other Participants:

4. College or Unit:

College of Management

5. Department:

Business Management

6. Project Description:

I plan to integrate wireless laptops into my IT Capstone course and assess the effects of laptops in the classroom. This capstone is an elective course in the IT concentration which students typically take in their senior year of the current curriculum.

IT researchers have advocated that active learning to be inclusive of experiential and hands-on activities for students. To address these and other IS issues, the MSIS Curriculum 2006 (Gorgone, et al., 2005) committee, which consists of Association for Information Systems (AIS) and Association of Computing Machinery (ACM) members, developed an interim report advising the field of future teaching directions. I have sought to incorporate active learning while partnering with industry at the undergraduate level. The IT Capstone class is an elective course that students typically enroll in during their senior year of matriculation and has been spotlighted at the 2004 AACSB (SAS sponsored my presentation), 3M-NCA&T University Leadership conference (SAS invited me to present) and in the Triangle Business Journal. This class provides a culmination experience for undergraduate IT concentration students and offers the following multifaceted objectives: This will be a completely project-oriented course. Students will work on real applications for national or local firm(s) to solve "live" IT problems. Students will work in teams to develop client deliverables and present their final work to an appropriate industry-based management team. Topics covered can include

project, supply chain and data management. Industry trends and knowledge will be developed throughout the course. Students are expected to draw of their knowledge of the database management, systems analysis, networking (if taken), accounting, finance, operations management and marketing courses. Road trips to client sites and/or outside class activities are a major part of this course; during these activities, students will interact with corporate executives, IT managers and industry experts

(<http://www4.ncsu.edu/~fcpayton/courses/bus495q/>).

Currently, I teach the course in a Nelson Hall computer lab and prior to this I have taught the course in an electronic classroom. While prior projects have included corporate partners with SAS Institute, Solectron Corporation, K-12 and the YWCA, student access to appropriate software applications has been a teaching challenge and yet, critical to my research agenda (See Solectron case, <http://cais.isworld.org/articles/default.asp?vol=12&art=43>; SAS Success case www.sas.com/success/ncsu.html; K-12 manuscript is under review by the NCSU Science House and NSF sponsored research conference; Teaching Brief is under review at the Decision Sciences Journal for Innovative Education).

My projects typically require that students learn software applications beyond Microsoft Office – hence enabling them to garner valuable skills needed in the globally competitive IT workforce. While I have been successful in obtaining in-kind donations for software, students do not typically have access to these applications via the College of Management computing labs nor do they have personal laptops to bring to the classroom. Most students have taken the software home to install on a desktop, and many do not own laptops; thus, this precludes me from “seeing” students’ work, such as application coding, system models, industry research results, etc. I typically review students’ work via paper copy; with laptops, I can provide immediate feedback while students revise their work electronically during class time.

Ideally, my future classes can be taught in one of the NCSU Class Technical Rooms, Library Meeting Rooms or the College of Education (COE) Discovery Room on Centennial Campus. The Discovery Room is ideal as I have been engaged in collaborative discussions with Beth Cassidy, Lisa Grable and Erie Wiebe on potential COE and COM joint SAS student projects.

LITRE funding will be used for the following. My goal is to (first cycle) purchase laptops and install the necessary, proprietary software to support student projects. The second cycle of my plan is to actually conduct the assessment using Learning-Driven and Content Driven factors as noted by the work of Laboratory for Innovative Technology and Engineering Education (LITEE), an NSF sponsored project based at Auburn University. A student will be hired to work with me on these IT Capstone classroom enhancements.

7. Project Objectives:

Though I have had a portfolio of successful projects with the students in the IT Capstone and while the course objectives will remain the same, the goals of this project are to:

- 1) Implement wireless laptops in the course
- 2) Decrease the amount of time and resources needed to get students access to necessary software applications
- 3) Enable students to use the technological applications during the class – hence reducing the steep learning curve

By using laptops, my class can be portable and not confined to a computer lab configuration. This class could be held in one or several of the locations noted in Part #6. These additional locations offer adequate work space for brainstorming, programming, technical writing, data analyses, executive presentations, and other interactive, hands-on activities that are required of the students. All of which can enhance student learning while permitting me to engage in active research on industry/academic partnerships and pedagogy.

The impact to the department, college and university below:

Note that BUS 495Q, IT Capstone, has been approved via a vote by the Business Management faculty to be added as a permanent course offering as of Spring Semester 2005. On Friday, 9.9.05, I was notified that the course has successfully completed the university approval. The permanent IT Capstone course number is BUS 449.

8. Estimated number of students affected:

Short term: I anticipate that 12-15 students will be affected. Given the collaborative efforts with the College of Education, there could potentially be 24-30 students impacted by the enhanced course to be delivered in Fall 2006. This plan dovetails with my existing SAS partnerships and the NCSU-SAS Virtual Computing Environment which has a current focus on business analytics.

Long term: The learning model can be scaled up beyond my classroom and provide teaching models for others on campus with a focus on analytics. Ideally, this can lead to additional campus-wide collaborative projects. Prior students have proposed that I offer the IT Capstone for both academic semesters. When this occurs, there will be more students affected.

9. Outcomes of the Project:

See notes in the Assessment Plan on learning and measures.

In addition, my IT Capstone course has a focus about these four dimensions with emphasis on data management and quality; analytics, and research from external sources.

10. Project impact on NCSU:

My project would enable NCSU to further support the SAS Virtual Computing Environment by providing additional live classroom experiences. This work

would offer collaborations with the Colleges of Education, Engineering and Management along with the university's Information Technology Division (ITD). This could lead to more sections of the IT Capstone with cross enrollment or team teaching among the divisions noted above.

11. Project Assessment Plan:

I will use a two-prong approach to assessment:

1) Student attitude questionnaire. A student perceived learning questionnaire developed by the LITEE group will be used. A pre- and post test will be conducted based on a validated 27-item instrument which accounts for content-driven and learning-driven factors. Learning-driven factors include self-reported learning, learning interest, learning from others and challenges to learning; content-driven factors will include timeliness, ease of use, quality and locatability. This questionnaire will serve as a basis for developing the next qualitative assessment tool.

2) Student e-journal evaluation rubric. Students will be instructed to write weekly e-journals reflecting on their learning experiences and weekly learning outcomes throughout the course. An evaluation rubric based on the above point #1 will be developed to identify evidence of learning from the class.

12. Staffing and Support:

Funding will be used to 1) purchase 5 wireless laptops and 2) support a student assistant.

13. Financial Support Requested:

EPA salary total:

SPA salary total:

Other salary: 3,000

Equipment: 7,000

Cost associated with assessment:

Other financial support requested:

Total Funds requested: 10,000

Additional Explanation of how funds will be used:

14. Funding Breakdown:

Total funding requested for fiscal year 2005-2006: 7,000

Total funding requested for fiscal year 2006-2007: 3,000

15. Staff Support and/or Technical Support Requested:

16. Timetable for Implementation:

Currently on-going: Discussions with College of Education, SAS, others on campus

March-April 2006 Purchase laptops (Cycle 1 of this project)

April-May 2006 Project Scope & Planning

August 2006 Hire & begin work with student assistant

September-December 2006 Implementation and assessment (Cycle 2 of this project)

17. Human Subjects Protection:

If your proposal project involves research using human subjects, you will need approval from the Institutional Review Board for the Protection of Human Subjects in Research (IRB) prior to final approval. IRB information is available at <http://www.ncsu.edu/sparcs/irb>

**18. Proposal Release:**

By submitting this proposal the applicant grants the LITRE Advisory Board permission to make this proposal available as an example for future grant applicants. All personal information will be removed if this proposal is used as an example.

