

ResEc112 Syllabus – Fall 2012 (preliminary—draft May 21, 2012)

General Learning Goals

This course is about expanding your capacity to think and work with others in ways that are important in information technology (IT) activities, particularly in the social sciences. You might be surprised by how many styles of thinking contribute to IT expertise. IT is a broad discipline. We hear the term “critical thinking” a lot, but what does it really mean and how do we improve our capacity to do this? What is empathy and what role does it play in IT? Can you train yourself to think more analytically, to break down a complicated process precisely into its constituent parts? How do you understand an organization well enough to responsibly design an information system that will mediate much of how it operates on a day-to-day basis? How do you work within a diverse team to reach a common goal?

Information Technology Learning Goals

There will be some activities that come easily for you and others that will be particularly challenging. Some students find it easy to troubleshoot a problem, narrowing down the possible causes. Some students know how to ask the right questions to understand the systems needs of an organization. Some are good at listening deeply and asking good questions to understand the values and goals of an organization, necessary to drive the design of that organization’s information systems. These are some of the **capabilities** that IT experts have. I expect you to identify and build upon your intellectual strengths. And, I am a firm believer that all students can develop their intellectual capacities in areas that may be weak.

You will also need to develop an understanding of IT **concepts**. The concepts that underlie IT don’t change all that quickly, and understanding them helps you learn new IT applications and see new IT opportunities. You will learn concepts central to relational database design, professional quality website design, and modeling with spreadsheets, and you will also learn many concepts that underlie modern computing in general.

Finally, you need **skills** with contemporary software tools, with an eye toward looking for common elements across tools and evaluating their suitability for different objectives. Proficiency with technology skills is often useful in getting jobs and internships, but developing your capabilities and conceptual understanding will do much more to help you thrive.

Content areas

You will be developing your skills, capabilities, and conceptual understanding in three IT content areas. You will learn how to develop professional-quality websites, databases, and spreadsheets.

You will learn **website** development concepts and techniques through a combination of readings, videos, and tutorials. This will largely be done individually and outside of class time. A “Readiness Assessment Test” provides you and me with a gauge of how well prepared you are to contribute to your teamwork tackling more complex projects in class; you will complete this test twice, first individually and then as a team.

In class, you will work with two teammates to play around with some of the concepts you were exposed to in homework. *Note well: the class sessions will be of little value to you and you will be little value to your team if you do not complete the homework assignments in advance.* During each class you will be presented with a challenge that requires some creativity and command of the skills to be successful. You will demonstrate your

proficiency with the skills, concepts, and capabilities of website design through a final project: a website to organize and display a portfolio of the competencies you developed as an undergraduate at UMass. Teams will collaborate on design and troubleshooting issues, and then each student will create an individual portfolio.

You will learn **Database** development concepts and techniques outside of class time through a combination of readings, videos, and tutorials. Students historically have been most challenged by the design phases of the database development process. We will spend significant in-class time working in teams on design choices and their implications. We will first practice this using a variety of made-up database scenarios, all in anticipation of a significant design and development project working in partnership with the **Amherst Survival Center** (“ASC”). This year we will develop a database for managing their free medical clinic. A big part of this project is learning about the practices, goals, and values of the Survival Center and about issues of poverty in our greater Amherst community they serve. Each table team will be graded together on the team database submission. Your individual learning from these database activities will be assessed in a midterm test. You will also be assessed on your learning about work in the community, details below.

Spreadsheets are a go-to tool for all sorts of quantitative tasks in many settings. You will develop fundamental spreadsheet competencies through videos and individual tutorials that you will complete at home. In class, you will work with others to further develop these skills and your ability to apply them in new settings. My goal is for you to develop a comfort and facility with spreadsheet concepts and techniques so that you use spreadsheets in the future when appropriate, and thus continue building your skills.

The spreadsheet projects will represent two application areas: *modeling* and *data preparation/analysis*.

Modeling involves creating a spreadsheet that models a system so that you can plug in different parameters and instantly see the results. An example of this is a solar house design, where you want to figure out the optimal roof overhang size that will block sun from the windows most of the summer while allowing in most of the winter sun. To model a system like this, you have to understand the system itself (become “operationally attuned” is the geeky way to say this) and understand the goals (and users!) of the spreadsheet tool. Then you need to figure out the best way to implement your ideas using the software tools available to you. This can be fun and valuable.

In many settings, data from a variety of sources need to be combined and manipulated into a format that allows for analysis, the ability to use the spreadsheet or a statistical package to “ask questions” of the data. There are a variety of techniques that help you make this process efficient and accurate, and we will play around with some of these.

Team based learning

Our class size this fall is 90 students, a large group that will provides a mix of perspectives and experiences useful in our work with the ASC and on other projects. Large class sizes often can feel impersonal and anonymous. The “Team Based Learning” (“TBL”) classroom we are in contains ten round tables seating nine students each. Each table has three laptops and assorted technologies so groups of three can work together well and share audio and video with the table or the whole room. This is my second year in this classroom. I am excited about building on the experiences and feedback from last year to make this class as active, useful, and enjoyable as possible, and I welcome (actually, depend upon) your continual, frank feedback on how the choices I and we make are working for you.

I will assign each student to a nine-person “table team,” and you will stay with that team the entire semester. You will often be arranged in three person work groups around specific tasks. This will give you an opportunity to get to know and learn from all the members of your table team early. Three-person teams are small enough to promote and depend upon the contributions of each member. Nine-person teams will discuss and reconcile ideas and challenges that come up in the small groups, drawing upon a larger set of perspectives and contributions.

Many students like working in teams but worry about uneven efforts across team members. I will assess (and encourage) individual preparedness and contributions through a variety of tools—attendance, homework, journal entries, quizzes, and observation. I have sufficient data to assess individual performance. While teams will and should have honest conversations about expectations and group process, my primary goal is to create an environment where you see your team members as resources, as a community you value, and as colleagues that you care about. I do not use student feedback when calculating grades, since I believe that creates conflicting loyalties. I am always available to help students resolve conflict and work toward high functioning, respectful teams. Different perspectives should lead to disagreements; I will support your work in making meaning from conflict.

Here is my perspective on teams: There are many different ways that team members can contribute throughout the course. A wide range of styles and competencies and perspectives and experiences will enhance our work and our learning opportunities. In pre-course surveys, students are most concerned about the intelligence and experience of team members (and themselves); by the end of the course they most value caring, listening, reliability, patience, respect, and other interpersonal skills. I encourage you all to invest in your team and teammates, and notice how we can be richer for working through the complications of working with others different from ourselves.

You will be asked to reflect on your team dynamics privately and publically throughout the course, and this work will contribute to your grade. Details of how your individual and group contributions are outlined in the grading section below.

Service-Learning

Our work with the Amherst Survival Center (ASC) is a privilege for us. They are a well-led organization in and of the community that surrounds and includes the campus. ASC values our multiyear partnership because will help them with database development, an important—necessary really—tool for a complex organization like ASC. My three decades of experiences with information technology have taught me that the most important IT capabilities cannot be taught or learned out of a textbook. With our partnership with ASC, we will work together to apply what you are learning in a real-world setting—to pursue real world opportunities, overcome real world challenges, make real world organizational values manifest in the systems that govern the organization. In other words, our work with ASC is *instrumental* to developing expertise in IT.

There is also *intrinsic* value in our service-learning, since it provides us with an opportunity to learn more about our community, to engage will people who are not well represented in our University community, to understand perspectives of classmates who see things differently, and to reflect on how our world views and academic preparation are reconciled with issues of poverty in our seemingly affluent state and community. Why are there poor people in the greater Amherst area? What role does (or can?) ASC play in reducing the effects of poverty, or in reducing poverty itself? What role does or can our database play in this environment. What ideas from other resource economics courses come into play? What experiences do we bring that shape our perceptions?

ASC is a wonderful community organization with strong leadership and tremendous community support; their partnership allows us to get into some of the subtle but critically important design issues that are typically hard to replicate in a classroom. We will learn from the ASC about their opportunities and needs for this year's project in formal interviews and other forums. Working groups will first grapple with design issues, contributing to final projects for each table team. At the end of the course, I will aggregate the best ideas from all the table teams into one database to provide to ASC. We will also learn from ASC's model of a caring community.

Beyond the grades for database learning, you will also receive a grade for your work in a diverse team to learn about issues of poverty and economic justice in our community. Some of this will be individual in nature. This includes individual reading and written reflection in a variety of styles: personal narratives from community members who depend on and contribute to the ASC; newspaper articles on current issues in poverty; and economic journal articles related to causes, social attitudes, measurement, and public policy-implications of poverty. New this year, it will also include a table-team online-discussion of these issues and an in-class table-team dialogue. Each table team will develop a five-minute multimedia presentation on a mini-topic of poverty of your choice. These will be shared with the whole class at the end of the semester.

Integrative Experience: Why this course is the prerequisite.

ResEc112 is the sole prerequisite for your junior year integrative experience (IE) requirement, and many of the skills you develop in this course will be built upon in the IE course. More information on the IE can be found here <http://www.umass.edu/resec/courses/Syllabus%20RESECON%20394IE.pdf> (for ResEc's IE syllabus) and here <http://www.umass.edu/gened/teachingAdvising/integrativeExperience/ie.html> (for the campus-wide effort). That latter page describes the IE as a "structured context for students to reflect on their own learning and explore the connections between the broad exposure provided by General Education and the more focused exposure of their major." Beyond your learning from General Education courses, the emphasis is on "connecting skills and knowledge from multiple sources and experiences; applying theory to practice in various settings; utilizing diverse and even contradictory points of view; and, understanding issues and positions contextually." You will practice this work in your service-learning activities and in your team-based learning experiences. The Portfolio you develop in ResEc112 will be used to organize and compile your learning experiences even after the semester ends, and it will provide a foundation for your work in the IE course. More information about the role of the portfolio can be found here: <http://www.theiejep.com/pdf/IJEP39.pdf>.

Grading

My grading goals are to evaluate your learning fairly and provide incentives for you to engage fully.

Your grade will be distributed evenly across four content areas:

- 25% Civic learning: working within diverse team on issues of poverty and community partnership:** reflections on readings and class experiences and your own development process, with particular focus on our work in teams and the community partnership. Final team multimedia presentation.
- 25% Database design/development:** team labs, team project, individual midterm exam, participation in needs assessment, attendance
- 25% Website design/development:** team labs, team project, individual portfolio website, attendance and participation

25% Spreadsheet modeling and design; labs (midterm exam, quizzes, attendance and participation, in-class activities)

Within each content area your grade will be evenly distributed across:

1. 33% - Individual preparation and contribution to your teams (as indicated by attendance, peer assessments, reading reactions, journal entries, tutorials and other assignments, and individual readiness assessment quiz scores);
2. 33% - Group work (labs and projects)
3. 33% - Individual assessments (portfolio website, database exam and spreadsheet exam).

I see the individual preparation (1/3 of your grade) necessary to contribute in class to your team work (1/3 of your grade), which in turn is necessary for your performance on the final individual assessment (1/3 of your grade).

Weekly Schedule (TBD)

Honor Code

Academic honesty. Cite all contributions others have made to your work. This includes using a direct quote or paraphrasing from other people's work, or even building upon the designs or ideas of others. It also includes receiving help from others. Giving credit generously does not diminish your achievement; building on the work of others is a fundamental aspect of work inside and outside of academia, so long as you add significant value. If you have any doubt about whether or how to cite contributions by others, ask me. It is surprisingly easy to notice when a student is not forthcoming about help received, and I consider academic dishonesty, whether deliberate cheating or careless omission, to be very serious. I believe that those students who are willing to sacrifice their integrity for a grade have more important lessons to learn than IT concepts, so I pursue probable violations to the full extent specified by campus policy:

http://www.umass.edu/dean_students/downloads/AcademicHonestyPolicy.pdf

Helping each other. While much of this course is collaborative, and I encourage you to help out your classmates, there are a few assignments, generally exams, which are individual. For these I am very strict about students helping other students; these are assessments of what individuals can do on their own. I will note on an assessment when it is to be completed without support, and I consider any violation of this a serious matter for both the helper and the helped that I will pursue consistent with the UMass Amherst Academic Honesty Policy. Because I sometimes encourage students to work together does not mean I always sanction it. When in doubt, ask.

Classroom community. You have a responsibility to do your part to maintain a classroom environment that respects and supports all learners. And, you have the right to an environment that supports your learning. If you have any concerns, please see me. Especially because we are working in a team environment, I strongly believe in the saying, "This class will only be as good as you are to each other."

Treat TAs well. They are your peers. They will try to help you but they will not enable you if you are using them to avoid coming to class or trying your best. Never ask a TA to help you outside of office hours or class periods unless I tell you it is ok to do so, and then only within the parameters I set. There will be times when

TAs will not know the answer to a question you ask, and that is not necessarily a bad thing. You might find that if the TA shares their thinking strategy rather than the “answer,” you learn more. If the TA cannot suggest a strategy that works for you, then please see me for help.

I don't use TAs for support in this class because I don't want to help you myself. Many students are more comfortable approaching peers, and your peer tutors can offer the perspective of someone who has just gone through a similar class experience. However, always feel free to come to me with any questions you have. If you cannot make my regularly scheduled office hours, feel free to email me for an appointment.

You are in charge of your own learning

Come to class and do your work. Find the learning resources that work best for you. Advocate for yourself. Ask for help when you need it. Write when prompted about your personal experiences: what you've tried, what works, what you plan on doing to overcome challenges. Writing about these things encourages you to step back and think a bit about your learning process. Each student is different, and I try my best to create a learning environment that works for all. However, the best advocate for you is you, and I always welcome you to share with me concerns you have. Do this early in the course, when something can still be done about it. The writing prompts in Moodle are good places to describe your journey through the challenges the course presents, however, if you have an urgent question or concern, email me or catch me during office hours or before or after class. If you have an urgent need to speak with me, you can call me on my cell phone: four-one-three-522-0047.

Give me frank feedback.

I enjoy trying new teaching strategies and technologies to create a more effective learning environment for the 90 students enrolled in my course. Each year I refine the tools and activities that were successful in past semesters, I throw out those that proved unworthy, and I try new ideas that I think might help me meet my goals. I do this because it is fun, it helps me be a better teacher, and it helps the course improve over time. With each tool, I will tell you how and why I use it, and I invite you to give me feedback on what works for you and how it might be improved. I consider effort you put into refining the mix of teaching technologies and approaches as more than just a favor to me and a contribution to the course, but an important learning opportunity for you, and I will credit contributions you make when calculating your grades.

Textbooks and readings.

There are no required textbooks. You will be assigned readings, tutorials, and videos from a variety of sources that I will provide for you. If you think reference books might make learning or applying the material in class easier for you, please let me know. I can make recommendations for you.

Software.

You will be required to use Microsoft Office software, including the database development environment called *Access*. Our web development will be done using *Expression Web* software. While you may use the campus computing labs for all your work, many of you will prefer the convenience of using your own computers. The university has licensing for both Expression Web and Access that allows me to provide it to you for free, however it only runs in a Windows environment. In fact, the reason I chose Expression Web software is that it is similarly robust compared to the standard Dreamweaver program, and a free license will allow you to continue developing your website after the course ends.

For those of you with Macs, I strongly encourage you to install Windows using Boot Camp (or an alternative) on your Mac, so you can choose to run either Windows or the Mac operating systems. You can get a free license for Windows through UMass. I will provide you with instructions at the beginning of the course, and there are support resources on campus that can help you with this. Subsequent course work in the Resource Economics major will also benefit from the ability to run Windows-only software, so you will probably consider setting up a dual-boot option on your Mac worth the time.