

**Resource Economics 397A – 3 Credits**  
**Economics of Contemporary Information Technology**  
**Spring 2020 Syllabus**

**Instructor** Mary Taft  
Room 209A Flint Lab

Email: [mataft@resecon.umass.edu](mailto:mataft@resecon.umass.edu)

Office Hours: Wednesdays 2:00-3:30PM  
Or by Appointment

**Description:**

This course provides an economic framework for the analysis of the Information and Communication Technology (ICT) ecosystem. There are several aspects of the ICT sector that make the study of its industries, firms, markets and products unusual. Information and Communication Technology firms often experience high fixed costs, but very low marginal costs. Markets in the ICT ecosystem frequently have one or two dominate firms competing against many small innovative firms. Periodically, new technologies emerge disrupting the industry status quo. Our studies will focus on the imperfect market structures found in ICT, the type of good, the type of business model, the role of government, the impact of disruptive innovations and the network infrastructure underlying this sector. We will also examine the economic history of information technology to gain insights into current market trends.

**Course Objectives:**

Provide students with the tools they need to understand and interpret the economics of the Information and Communication Technology ecosystem.

**Texts:**

1. Brynjofsson, Eric and Andrew McAfee, *The Second Machine Age*, W.W. Norton & Company, New York, 2014. **Purchase book thru Perusall.com.**
2. Moazed, A., and N. Johnson, *Modern Monopolies*, St. Martins Press, 2016. **Purchase book thru Perusall.com.**
3. Khan Academy, *Microeconomics* (Optional free website):  
<http://www.khanacademy.org/economics-finance-domain/microeconomics>

**Readings:**

**Check both the Class' Moodle web site and Perusall for reading assignments.** Given the fast pace of innovation and change in this ecosystem, new reading assignments may be added periodically. A bibliography for this course including all assigned readings is posted on Moodle.

## Grading:

There will be one midterm, and six reflections on in-class discussions, one group research project, and a take home final. The grading breakdown follows:

|   |     |
|---|-----|
| In-Class Group Discussion Reflections (6@5%each)  | 30% |
| Midterm Exam                                      | 25% |
| Group Project on Innovative Electric Vehicle Firm | 10% |
| Take Home Final                                   | 15% |
| Perusall Assessment of Reading Assignments        | 10% |
| Class Participation                               | 10% |

Periodically students will be asked to break into small discussion groups and submit a reflection of what they learned during the group discussion. Each group will also conduct economic research on an innovative electric vehicle firm. Groups will select a firm that combines an ICT device (auto, truck, bus, taxi.....) with operating system and application software. Each group will research their selected firm and explain the underlying economic challenges and opportunities that their firm faces. The groups will summarize their research findings and analysis in a group presentation in class. Students are required to submit their take-home final through Turnitin.

Participation is a critical component of this course. Meaningful participation will enrich your learning experience and requires coming to class prepared!!! Notice that class participation and Perusall reading assignments represents **20%** of your grade. Make sure you read and annotated the Perusall reading assignments in a timely fashion, attend class, turn in your reflections, revise your work, ask questions and engage in class discussions.

## Accommodations:

I am committed to providing an equal educational opportunity for all students. If you have a documented physical, psychological, or learning disability on file with Disability Services (DS), you may be eligible for reasonable academic accommodations to help you succeed in this course. If you have a documented disability that requires an accommodation, please notify me within the first two weeks of the semester so that we may make appropriate arrangements.

## Academic Honesty:

Group discussions and study groups are encouraged in this class and are very helpful in expanding student understanding. When taking a test, writing an essay or turning in a paper, your written work and reasoning must be your own and reflect your understanding of course content. The final take home exam and Midterm corrections will be submitted thru Turnitin. Turnitin checks each assignment for plagiarism. If plagiarism, cheating or other violations of UMASS's code of conduct are uncovered, I will follow UMASS' policy on academic honest. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent ([http://www.umass.edu/dean\\_students/codeofconduct/acadhonesty/](http://www.umass.edu/dean_students/codeofconduct/acadhonesty/)).

**Misuse of the Perusall app** – For example, posting comments as your own that are copied from the text or from external web sites will be treated as academic misconduct and could result in an overall Perusall score of zero for the semester.

### Spring 2020 Schedule:

| Week | Topic  | Homework Due   |
|------|--|--|
| 1/22 | Introduction and Microeconomics  |  |
| 1/29 | Economic History and Market Structure  | Discussion 1: Innovation & Productivity<br><b>Reflection 1: Due 2/2/20, midnight</b>   |
| 2/5  | Monopoly and Imperfect Technology Markets  |  |
| 2/12 | Technology, Market Structure & Multisided Platforms                                      | Discussion 2: Smart Phone Market<br><b>Reflection 2: Due 2/16/20, midnight</b>   |
| 2/19 | Big Data & Externalities   | Discussion 3: The Equifax Hack<br><b>Reflection 3: Due 2/23/20, midnight</b>   |
| 2/26 | Big Data, Differentiation of Products & Prices, Economies of Scale, and Natural Monopoly | Group Research Transportation Sector: Identify three innovative EV firms and their markets.  |
| 3/4  | <b>Midterm Covers:<br/>Lectures on 1/22 thru 2/26</b>                                    |  |
| 3/11 | Network Effects, ICT Concentration and Anti-Trust  | Discussion 4: Network Effects<br><b>Reflection 4: Due 3/15/20, midnight</b>  |
| 3/18 | <b>No Class: Spring Break</b>  |  |
| 3/25 | Introduction to the Economics of Internet Infrastructure                                 | Informal Discussion: Creative Destruction and the Transportation Industry: Tesla Case Study<br><b>Group Research</b>                         |
| 4/1  | Broadband Economics and the Last Mile  | <b>Midterm Revision due before Class</b><br>Discussion 5: Moving Money<br><b>Reflection 5: Due 4/5/20, midnight</b><br><b>Group Research</b> |
| 4/8  | Broadband Economics and Net Neutrality   | Discussion 6: Net Neutrality<br><b>Reflection 6: Due 4/12/20, midnight</b><br><b>Group Research</b>  |
| 4/15 | The Internet and Other Disruptive Forces   | <b>Group Presentations</b>   |
| 4/22 | <b>No Class: Monday</b>  | <b>Schedule Followed</b>   |
| 4/29 | Summary  | <b>Group Presentations</b><br>Take-Home Final handed out:<br><b>Final Due 5/7/20, midnight</b>   |