COURSE OUTLINE AND SYLLABUS

COURSE DATA

Name of course:	Computational Marketing
Academic year:	2013-14
Year in the Program:	3rd and 4th
Trimester:	3rd
Degree:	IBE/ADE/ECO
Course code:	22960, 22962
Number of ECTS credits:	5
Hours of dedication:	125
Language of instruction:	English
Professor:	Kalyan Talluri

PRESENTATION

Internet technology and marketing has become pervasive essential for almost all businesses. One critical new aspect of business that has emerged over the last ten years is algorithmic marketing where large amounts of information on customers is used as input for algorithms to make decisions (pricing, targeting, advertisement choice etc.).

In this class you will learn (i) the underlying technologies, models, and limitations of e-commerce and algorithmic marketing (ii) tools and techniques for marketing a web business (iii) social and search marketing (iv) mobile commerce.

The course is interdisciplinary and will cover elements from marketing, operations research, economics, computer science and sociology.

COURSE CONTENTS

- Internet basics, Privacy, Fraud and Security; Cryptography
- Database and Direct and E-mail Marketing: RFM, Data Mining, Recommendation Systems; classification and clustering algorithms
- Search Engines, Optimization, Display and video advertising, news mining and dissemination
- Internet Payment Systems; Pricing on the internet; Dynamic Pricing; Competitive information; Price Search Engines, Auctions
- eCRM, Market Research on the Web
- Social Networks, social marketing
- M-Commerce, Location based services

The course is rigorous and rather mathematical; we study models, algorithms, and their analysis. Students are expected to know the mathematics covered in Mates 1,2, 3 as well as Probability and Statistics. We will use Excel and also free data mining tools.

COURSE ORGANIZATION

The course duration is 10 weeks. The course is divided into theory lectures (or classes) and seminars. There are two (theory) classes per week, each lasts for 80 minutes. In addition, there are 6 seminars, each lasts for 80 minutes.

The seminars are dedicated to homeworks and independent study and research. Students are expected to research a topic assigned to them and to make a presentation of 30 minutes during the seminar hours.

COURSE SKILLS

GENERAL SKILLS

Instrumentals

1. Ability to analyze and synthesize
2. Ability to organize and plan
3. General basic mathematical knowledge
4. Problem solving
5. Written and spoken capabilities

Interpersonal

6. Criticism

Systemic

7. Research abilities
8. Learning capacities
9. Autonomous work
10. Ability to generate new ideas (creativity)

Other

11. Written and oral communication abilities using a specialized language (mathematics).

SPECIFIC SKILLS

1. Model formalization of different settings through mathematical language.
2. Solutions of mathematical models.
3. Knowledge of basic tools in mathematical analysis and linear algebra and their applications to economics and business.

EVALUATION

The grading is **based** on the following components. See the final grade section on how the grade will be given.

Final Exam: 40%
The final exam will take place at the end of the quarter and will last for two hours. The exam will cover all the material discussed and taught in class and in the seminars, as well as the recommended reading and the problem sets. It will cover both theoretical and practical aspects of the material. It counts 40% of the final grade.

A necessary, but not sufficient condition, to pass the course, is that students must have a score on the final exam of at least 4 out of the total 10.

Continuous Evaluation: 60%
This part of the grade will be based on the evaluation of all the activities that will take place during the quarter: problem sets, participation in the seminars (including solving and discussing practice problems), and at least one presentation based on individual study.

The grading of the specific components is:

1. Mid-term quiz. **20%.**

2. Presentations: **25%**. Groups of three students are expected to make a short presentation (30 minutes) based on individual study and research. The presentations will start in the 1st or 2nd seminar and there will be two to three presentations during each seminar class. The topics will be assigned by the instructors.
3. Homeworks: **15%**

Based on above you can calculate a weighted average of your performance (eg: 63.54/100)

Final Grade: The final grade that will enter your official record is a score from 0-10 (fractional values allowed). This grade will be given as follows: The total based on the Final Exam and Continuous evaluation will be calculated as a weighted average with the weights as described above. The entire class will be sorted based on this total. **The assignment of the final grades is entirely at the discretion of the instructor,** but will respect the ranking by weighted average. Top 1 to 2% will get a Matricula d' Honor. At most 10% will get an Excelente. The grade may or may not be a translation of your weighted average (eg: 63.54% does not mean an automatic grade of 6.354, but **could** be stepped down to 5.5 or 6 (*suficiente*) or may even be moved up to a *notable* if the exams were very difficult).

Make-up final Exam:

If you get a final grade below 5.0, it is considered a fail and you have to take a make-up exam. In the make-up exam the grade will be calculated in the following manner. The make-up exam final grade will count for 80%. The other 20% will be based on your class performance. The date of the make-up exam will be posted on Aula Global and is either on **9 july 2014 from 9-11AM**.

REFERENCES

TEXT BOOK

There are no required textbooks. Class notes and handouts are sufficient.

METHODOLOGY

Students are supposed to do the following weekly assignments:

- Attending the (theoretical) classes
- Individual study: solving and reviewing problems, reviewing the material taught in the class and the text book.
- Before attending the seminars: answering the problem sets questions.
- Attending the seminars and handing in the assigned problem sets.

CLASS RULES

1. **No mobile phones, tablets or computers can be turned on in the classroom**. This policy is strictly followed and students will be asked to leave if found using any of these gadgets.
2. No plagiarism, cheating or copying will be tolerated. If detected, the grades of **all** involved parties may be reduced down to Fail and reported to the Dean's office.
3. You are expected to be punctual.

OFFICE HOURS

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Office hours: will be announced in class