

# Industrial Blueprint

-The IOE Student Newsletter-

Volume 19, Issue No. 7

A joint venture from APM and IIE

March 2006

## Undergraduate Walk-In Counseling Hours

### Professor Yili Liu (Program Advisor):

Wednesdays: 2-3:00pm & by appointment  
In G622 IOE  
E-mail: [yililiu@umich.edu](mailto:yililiu@umich.edu)  
Phone: 763-0464

### Justina Chiang (IOE/EGL Peer Counselor):

Mondays 10 am - 1 pm  
Tuesdays 9:30 am - 10:30 am, 1:30 pm - 5 pm  
In 1749 IOE  
E-mail: [jlchiang@umich.edu](mailto:jlchiang@umich.edu)

### Amit Shah (IOE/EGL Peer Counselor):

Wednesdays 11:00am - 4 pm  
Wednesdays Noon - 2:30 pm  
In 1749 IOE  
E-mail: [kneubaue@umich.edu](mailto:kneubaue@umich.edu)

### Pedro Vaz (IOE/EGL Peer Counselor):

Mondays 1 pm - 4:30 pm  
Tuesdays 12:30 pm - 1:30 pm  
Fridays 12:30 pm - 3:30 pm  
In 1749 IOE  
E-mail: [pvaz@umich.edu](mailto:pvaz@umich.edu)

### Pam Linderman (IOE Undergraduate Advisor):

In 1603 IOE  
E-mail: [plinder@umich.edu](mailto:plinder@umich.edu)

## Upcoming Events

March 31	IOE Get-together
April 1	April Fool's
April 3	Registration Starts
April 8	IOE Bar Crawl

## A Few Words From the Editor . . .

**A**pril? Really? I can't believe that it's already time for this ridiculously helpful, jam-packed-with-information March Issue of the Blueprint to come out. April is just around the corner., and this year is rapidly coming to a close. With fewer than 3 weeks of classes left in the semester, it has become impossible to avoid students discussing their summer plans or their jobs for next year, no matter how hard I try. The line outside the peer counseling office has returned as students pick up their audits and discuss with the fabulous peer counselors the best course of action to follow so they can graduate on time. (If you haven't seen a peer counselor yet, you should go ASAP. Our three peer counselors demand the opportunity to help everyone.) Even more importantly, the weather is finally starting to make a turn for the better. After months of bitter cold, biting wind, and an oppressive gray sky, the sun has come to reclaim its spot in our celestial empyrean and chase off the blanket of clouds above us.

However, I would like to take the voice of dissent on the changing season. I completely understand that I am probably completely alone on this, but I am bummed to see this year coming to a close. I have been having a fantastic time. All the "class" business aside, this has been one great year. I have finally come to realize how much there is to be done on North Campus and the University. Where else can you eat free food 6 times in a week? I haven't even been grocery shopping this semester; and to me, that's magical. That's not to say that whatever comes next for me will any less fantastic; I'm just saying that I am in no major rush to get there just yet.

Of course, the year isn't over. Three weeks is plenty of time to do any number of fun and exciting events: see a play, throw a Frisbee on the Diag, nap outdoors, sit idly on porches, and Springfest. At some point in the next month, make sure you take some time and do something awesome. Maybe go eat some delicious Nachos or hang out with me around the IOE Building. Regardless of the specifics, I have nothing but wholehearted faith in the IOEs to make the most out of the remaining weeks. Here's to an incredible month!

Love,  
Steven Agacinski

**Visit the IOE Department Website:**  
<http://ioe.engin.umich.edu/degrees/ugrad/ugrad.html>

## IOE Student Societies

### Alpha Pi Mu (APM)

<http://www.engin.umich.edu/soc/apm>

### Engineering Global Leadership (EGL) Honor Society

<http://www.engin.umich.edu/students/support/egl/>

### Human Factors and Ergonomics Society (HFES)

<http://www.engin.umich.edu/soc/hfes>

### Institute of Industrial Engineers (IIE)

<http://www.engin.umich.edu/soc/iie>

### Institute for Operations Research & the Management Sciences

<http://www.engin.umich.edu/soc/informs>

### Outstanding Multicultural Industrial Engineers (OMIE)

<http://www.engin.umich.edu/soc/omie/>



-The IOE Building-

Sunny side up

## Briarwood Dollar Movies

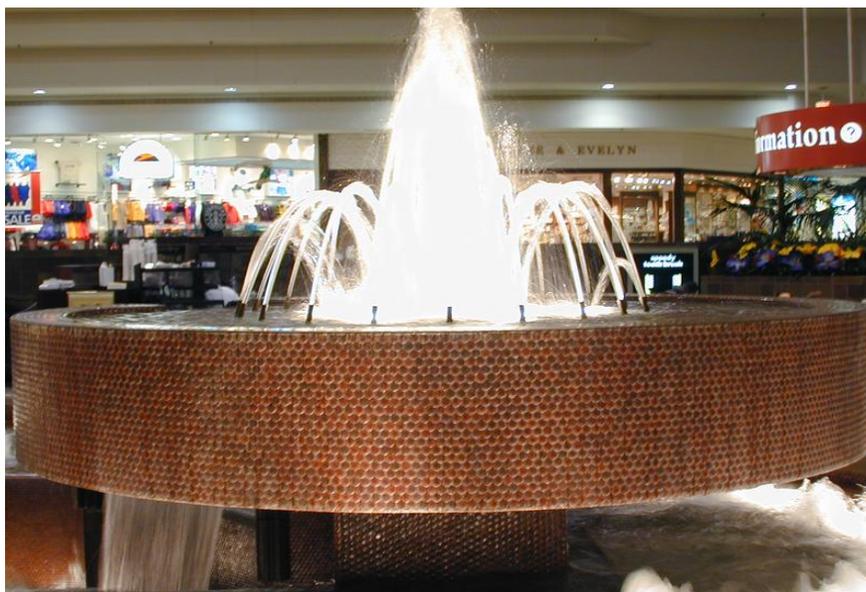
By Cassie Walls

A new opportunity has recently become available in Ann Arbor to film fanatics such as myself: the Briarwood Dollar Movies, located at Briarwood Mall. I know what you're thinking: it can't really be \$1. That's what I thought too, especially considering Quality 16 and Showcase both charge about \$9, but I was wrong. All shows before 6 pm are \$1, after 6 pm tickets go up 50 cents to a whopping \$1.50, and Tuesday is \$0.50 all day. I'll admit that the low operating costs do create some drawbacks: they play second run movies, don't take plastic (there is an ATM located a few yards away), and the theaters aren't exactly luxurious.

This taken into account, I still think the pros far outweigh the cons. As college students, we're usually not too on top of the newest releases, so it's not a big deal to see a film late; in fact most of us wait until things come out on DVD. In this respect, taking a date to Briarwood is actually cheaper than paying the \$4 to rent a DVD from Blockbuster (especially on a Tuesday), plus you get the advantage of seeing it on the big screen in a dark theater. This is way less than the \$18 you'd pay at a traditional movie theater, and Briarwood is usually free of long lines and jam-packed theaters. The concessions are comparable to any other movie theater (we all know this is where they make all their money), and the staff is generally courteous.

There are usually 5-6 movies playing each week across three theaters. Current movies include *Good Night and Good Luck*, *Syriana*, and *Memoirs of a Geisha*. Movie times are generally posted on Friday for that day through the following Thursday, and can be found on the theater's website: [www.teichertheaters.com/briarwood\\_dollar\\_movies\\_4](http://www.teichertheaters.com/briarwood_dollar_movies_4).

I highly recommend that you check out this new addition to Ann Arbor, and enjoy going to the movies without going broke!



## Places to Study

By Cassie Walls

Finals are right around the corner, which for many students will translate into countless hours buried in books. At this point in the school year, many of us are sick of Duderstadt and the libraries, and are in dire need of a change of scenery. I suffer from this problem as well, and would therefore like to offer up some suggestions.



For students who don't have cars, there are many options on or near campus:

**Amer's** – offers two locations, one on S. State and the other underneath Rick's on Church St.

This vegetarian-friendly café/deli offers a wide variety of food and drink and provides a cozy atmosphere. Amer's is generally less busy than many of the other similar establishments downtown, and offers free wireless to its customers.

**Beaners** – a new coffee-shop on Liberty with a cheery atmosphere also offers free wireless for its customers, and often has free samples.

**Borders** – this may sound strange, but Borders is a great place to study. They have a Seattle's Best upstairs with a seating area, as well as a few large tables located between the shelves. The atmosphere is significantly quieter than a traditional coffee shop, and still an escape from campus. Unfortunately, their wireless access isn't free, which can be a drawback.

**Espresso Royale** – there are locations both on Main St. and S. State. Both offer free wireless for customers, and offer a tasty assortment of drinks and snacks to keep you going all day.

**Starbucks** – a standard study spot for many students, most downtown locations are often crowded. The one on the corner of Liberty and State provides the most seating, therefore increasing your odds of finding a table. It is important to note that, at least in my experience, none of the Ann Arbor Starbucks locations offer free wireless.

**Sweetwaters** – this less-known café is one of my personal favorites. Their flagship location is located at Ashley and Washington, but they have recently opened a location in Kerrytown. Both of these locations are easily reachable by the Link, which is free for students. The Kerrytown location has wireless, while you can catch a signal from nearby Grizzly Peak at the other.

**Zingerman's** – their "house" next to the main deli has a lot of seating (including outdoor seating if the weather ever improves), and includes a coffee shop, which is excellent. There is additional seating upstairs. I recommend trying to avoid the lunch rush, as it may be difficult to find a table.

For those students that have cars, there are a couple of additional opportunities:

**Ann Arbor Public Library** – Ann Arbor has recently built a new library on Oak Valley Dr., which is behind Target. The new building is very pleasant, offers free wireless, and includes many reading and studying areas, including one with a window wall and fireplace. This is a good choice for those who enjoy studying in libraries, but are tired of the ones on campus.

**Espresso Royale** – there is an Espresso Royale in the Busch's shopping center at the corner of S. Main and Ann Arbor Saline Rd. This location is much less busy than it's downtown partners, and also provides free wireless in a much quieter atmosphere.

I hope this helps everyone be more productive during the crazy finals season, and wish you all luck with the end of the semester!

## IOE 474 Course Review

By Punit Mattoo

One of the most important classes you can take within the department is IOE 474 - Simulation. This course merges many of the earlier theoretical courses you've taken into an applicative learning experience that will surely impress any interviewers.

Although some of you may be daunted by the fact that the course focuses on programming, the course should definitely not be looked at as the second coming of IOE 373. Instead, the highly user-friendly ProModel software makes for less time-consuming assignments. Also, the course features (possibly too many) Excel assignments which give a great introduction into writing simple macros. The main part of the course, at least towards the end, is your team project. Working in groups of 3 or 4, you get to decide what you would like to analyze, and the possibilities are limitless. While the software and our homeworks were designed around queueing or manufacturing systems, our group created a stock simulation program that, while obviously not accurate, provided a learning experience unlike any of the other courses I've taken here.

Fortunately, the professor and GSI recognize that problems may come up and are helpful. They also constantly repeat that the purpose of the course is to learn, and the results don't necessarily have to be right. So, if you're interested in a class that combines programming, data analysis, statistics and a little writing, and gives you plenty of material to discuss in your next interview, IOE 474 is a great choice for next semester.

## Things To Do Before Registration Begins

By Mingcheng Lim

1. Get your IOE audit sheet from one of the ultra-friendly peer counselors at the IOE Peer Counseling Office.
2. Have a rough idea of how many classes and which classes you want to take in the following semester.
3. Go to [www.umich.edu/~regoff](http://www.umich.edu/~regoff). On the left-hand column, click on "Schedule of Classes" and select the appropriate term to view. They usually post 1 term ahead to give people heads up of the classes schedule. This is a useful resource to check if any of your classes will clash, or if the classes you want to take are available next term, even before Wolverine Access is up for back-packing.
4. Talk to the very helpful peer counselors at the IOE Peer Counseling Office for advice and any tips for any of the courses you plan to take. (Note: This can also follow right after step 1, if you have no idea at all of what you want to take next term).
5. Talk to friends whom you know have taken the courses you intend to take. Get their views on the course and how it was taught.
6. Remember to back-pack. This can save time when you are registering for classes as you just need to select the classes that were backpacked and process them instead of searching through all the courses to search for a particular time slot you want.
7. Plan a few timetables on the courses you want but with different discussion/lab / courses time slots so that in case you do not get your ideal timings, you know which other slots are good for you and you do not have to waste time figuring out which slots are good for you when registering.

## IOE 452 Course Review

By Karn Budhiraj

When it comes to 400 level electives, IOEs have some really good courses to choose from. One such course is Corporate Finance (IOE 452) taught by Professor Volodymyr Babich. IOE 452 is an excellent starting point if you're considering a career in finance or are just curious about how financial markets work in general.

The course is broken up into three parts: valuation, asset pricing, and financing. The valuation part goes over the Net Present Value (NPV) formulation. NPV is then used in asset pricing where the relationship between risk and return is explored. Lastly, the course delves into capital structures of companies and discusses the implications of taxes, among other factors. The lecture slides in 452 are concise and Prof. Babich does a great job simplifying complicated concepts by using real-life examples during lectures. Additionally, the lecture notes follow the book closely which makes it easy to make up for a missed class. The book, I thought, was excellent.

In conclusion, it's a great course to take if you're looking for something different than your typical IOE class.

## ME 235 Course Review

By Sarah Kamilaris

For one of the 12 credits of non-IOE engineering courses IOE's are required to take, I recommend Mechanical Engineering 235. It's a three credit course, but don't worry—Pam will allow it, if your other two classes are four credits each. The class meets three times a week for an hour. While I had the misfortune of taking it Mondays, Wednesdays, and Fridays at 8:30 am, I was often able to attend the afternoon lecture instead of the morning lecture. The required text for the course is a large book priced above one hundred dollars, so if you can, borrow one from a friend (there are a million floating around out there). Personally, I had a difficult time understanding the text, which is actually written by the one of the course instructors, Professor Borgnakke. I did not take the class with him, but I've heard that he's very good and he makes the class interesting. Also, the subject of ME 235 is Fluid Dynamics, which for me is relatively appealing—yet, I'm still not sure what entropy is.

There are weekly assignments and three exams in ME 235. The assignments are graded on effort, which is a nice change from other engineering-related classes. Also, in my experience, the teacher did a good job of providing detailed class examples which were similar to those found in the homework—so, it pays to go to class (or have a friend go who is always willing to share notes). When doing homework assignments, I recommend working in groups.

Personally, I thought the exams in ME 235 were pretty challenging; they consisted of three or four in-depth questions to be completed in an hour. Studying for these difficult exams, however, required minimal effort. Just looking over the previous exams for the course was extremely helpful. Also, the test averages were low and the grading was pretty generous.

So, if you're looking for a non-IOE engineering course that is interesting but not very strenuous, you should consider ME 235 to be a promising choice.

## IOE 447 Course Review

By David Ollinger

I took IOE 447 last semester (Fall 2006) with Professor Yavuz Bozer. The course covers a wide range of manufacturing topics. 447 focuses on creating efficient layouts for single and multi-story manufacturing facilities. The course emphasizes the use of paper-and-pencil and computer-based algorithms to create new, well-organized plant layouts, or improve existing facilities. Plant location, product and process flow, material handling, and work cell design are among key topics of 447.

The course consists of semi-weekly lectures (90 minutes each) and no discussion section. Grades are based on homework assignments, two exams, and a term project. Homework is assigned about every other week. The exams (midterm and final) resemble homework assignments and usually consist of several multi-part problems. The term project is completed by groups of 2-3 students. It is assigned about a month before it is due, shortly before finals. All teams work on the same project and are graded on a competitive basis; the best team solution gets the highest grade. Each team creates a plant layout given the same list of objectives and constraints. The project is a major point of emphasis in the class and accounts for a substantial portion of the grading scheme.

Professor Bozer is a co-author of the course text, *Facilities Planning*. He is an obvious expert on the topic and seems to enjoy teaching the class. His professional background includes many years of consulting in and outside of the US. Professor Bozer occasionally referenced his consulting experiences in class. So if you are considering a career in consulting, you may find lectures especially interesting and helpful.

I enjoyed IOE 447 very much, and I highly recommend the course to anyone with an interest in manufacturing or consulting. I am currently taking IOE 425 - Lean Manufacturing, and I am noticing a fair amount of shared subject matter between this class and 447. You may gain a better understanding of the topics in each of these courses by taking 425 and 447 together.

## Engineering Licensure

By Hsin Chai

1. The first step is to graduating from an ABET accredited program at a college or university. The IOE program here is accredited.

2. The first exam in the licensure process is the Fundamentals of Engineering (F.E) exam. There are two parts in this exam. Part I is the general exam common to all disciplines. The materials covered in Part I include Mathematics, Engineering Probability and Statistics, Chemistry, Computers, Ethics and Business Practices, Materials Properties, Thermodynamics, Electricity and Magnetism, and Fluid Mechanics. Examinee can opt to take a general or a discipline specific exam for Part II. Industrial Engineering is one of the options in Part II. Most students take the exam right before graduation or soon after, while the technical information they've studied is still fresh in their minds. So, IOE seniors, now's the time! Once you pass the exam, you are classified as an intern, also known as an Engineering Intern (EI) or Engineer-in-Training (EIT).

3: Working time... you need to gain appropriate working experience.

## IOE 438 Course Review

By Sarah Zarowny

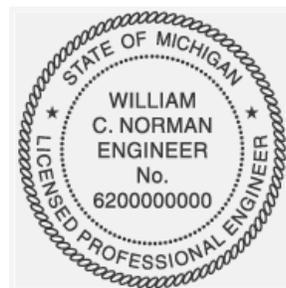
IOE 438 (Occupational and Safety Management) is the only undergraduate safety course in the IOE department. I think that this course can be compared to IOE 333 – most people either like it, or are impatient with it.

I came down on the side of liking IOE 438. Taught by Paul Adams, the class is a two-credit, half semester course offered in the first half of the winter semester. The format of the class is a two-hour lecture, twice a week – notes & slides are provided prior to each class. The coursepack is pretty hefty (and expensive ~ \$70), offering about 4 articles to read for each class. But the reading isn't difficult, only time-consuming.

A midterm and a final are given – each exam has two portions, approximately half an hour for closed book questions (multiple choice and fill-in-the-blank format) and a little over an hour for open book questions (multiple choice, matching, fill-in-the-blank, and a few short answer). The mean on the midterm was a little above 80%, while the mean on the final was about 50%, and the high score was a 62%. Suffice to say that the final is harder than you think it is. Also, +/- grades were not awarded – you either had an A, B, or C and nothing in between. Professor Adams does not allow students to keep their exams – you may look at your exam and your grade, but you cannot leave the room with it. So you will not have any luck trying to get old exams from friends.

I enjoyed the class because there were no homework assignments. As long as you keep up with the reading, it's not a difficult course. I also enjoyed learning about the safety profession; it was something I had not thought about or considered much before. Paul Adams also spent some time talking about important safety certifications, which I found interesting because becoming a PE or gaining certifications beyond a degree is not promoted much at Michigan.

4: You can take the second licensure exam once you have gained appropriate engineering experience. This exam is known as the Principles and Practice of Engineering (P.E) exam. This exam is a discipline specific exam. Once you are granted licensure, you may use the distinguished designation "professional engineer" or P.E.



## IOE 461 Course Review

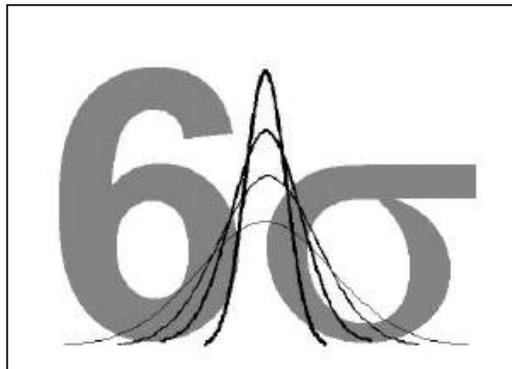
By Jia Tay

This is a course that you would not want to graduate with an IOE degree at U of M without. IOE 461 is a Six Sigma black belt training course. What is Six Sigma, and what is black belt training? The textbook definition of Six Sigma is: "a systematic methodology utilizing effective data analysis tools and techniques to improve business performances by eliminating or preventing defects and inefficiencies in manufacturing and service related processes to meet and exceed customer needs." Basically, Six Sigma is a tool that is currently widely utilized in industries today to reduce variation and improve

process flow. It can be applied to both manufacturing and service/office operations. "Black Belt" is an idea adapted from Karate belts to motivate continuous advancement of problem solving skills. In Six Sigma, there are yellow, green, black, and master black belts. In this course, you are receiving black belt training, and at the end of the course, you may pursue a University of Michigan Six Sigma Black Belt Professional Certificate.

This course involves quite a lot of statistics, but this is more of an application type of course, where you actually see where your statistics are used in real life situations instead of just pure memorizing of formulas and all, so I personally find it easier to absorb and understand (and this is coming from someone who does not enjoy nor do well in statistics courses very much). There are a few case studies that you will have to work on for this class, but they are valuable in helping you understand your concepts more clearly as you work through them. These case studies are modified from real Six Sigma projects, so they give you a taste of what it is like to conduct a project on your own.

Once again, I give this course ★★★★★ for being a valuable asset to add to your set of skills and for being able to stand out and appeal to your potential employers on your resume.



## Ergonomics: the Next Step

By George Hart

As you attempt to satisfy your technical elective distribution requirements, you may look back upon your experience in IOE 333/334 fondly enough to consider taking additional ergonomics classes. Although it may seem strange to some students who have just completed the IOE 333/334 combination, there are several interesting options beyond those classes. According to our IOE audits, IOE 432, 436, 438, 439, and 463 all fall into this category. Of these classes, IOE 436 and IOE 438/439 are generally the most popular. A brief review of each follows:

### **IOE 436 – Human Factors in Computer Systems.** 3 credits.

This class is most similar to IOE 334. However, it is taught in a lecture format rather than the lab format of IOE 334. The class meets twice a week, and Professor Paul Green spends each 1.5 hour class period interactively discussing relative issues and the literature on the subjects. The problems discussed are actually quite interesting, and apply directly to the student's lives, as we all use electronic devices and computers everyday. There are no exams in the class. Instead, the semester grade is based on team lab reports. All experimentation is done outside of class. However, in comparison to the sometimes unwieldy labs of IOE 334, these are much easier to perform since the necessary equipment usually is some electronic device readily available, such as an iPod or a laptop computer. This course provides a thorough analysis of some of the issues in human-computer interaction, and I have found it to be a very enjoyable class.

### **IOE 438 – Occupational Safety Management.** 2 credits.

IOE 438 is usually offered in conjunction with IOE 439. Both are 2 credit, half-semester classes. This year, IOE 439 was not offered. Normally, IOE 439 follows directly after the completion of IOE 438, in the second half of the semester. IOE 438 deals with some of the occupational safety organizations discussed in IOE 333. The course primarily focuses on OSHA (Occupational Safety and Health Administration), and related organizations and their supporting legislation. The class meets from 5:00 to 7:00 PM on Monday and Tuesday nights.

Classes can often be a staggering onslaught of information, presented in a rather dry manner. Topics discussed include the history of workers' compensation, the development of the legal framework of OSHA, ANSI standards, and worker safety programs. The material, by nature, is not that interesting to the casual learner, and due to its volume, can sometimes be a little overwhelming. Despite this, the topics discussed are very important to understand, especially for engineers who may have a future in factory management or may be responsible for designing safe working environments. The course has no homework, outside of the assigned readings. Semester grades are determined solely by the midterm (40%) and final (60%) exams. This semester, the course was taught by Adjunct Assistant Professor Paul Adams. Next semester, the course will again be taught by the usual professor, and the focus of the class may shift slightly.

# IOE 425 Course Review - Make It Lean!

By Renee Sloan

You hear the campus recruiters talking about it, and you probably wish you knew what the heck all the hype is about. What is Lean Manufacturing anyways? That's a really good question and one you will probably want to address if you plan on furthering your career in Industrial Engineering. Within the IOE department it's known as IOE 425, and in varying parts of industry its principles are becoming increasingly used as the foundation for improving all kinds of processes. Although the system was initially developed by the founder of Toyota, its use today is widespread, reaching beyond the automotive industry and even outside manufacturing altogether.

Lean manufacturing's importance in industry is evident in the number of recruiters who will bring up the subject during pre-screenings and information sessions. In fact, some of the interview questions asked by these companies are targeted to find out if you are the type of person who is willing to strive to continuously make things better. The goal of instilling a lean system is simple and logical. It aims to use the least amount of resources (people, inventory, equipment) necessary to satisfy the customer requirements to achieve the highest quality, lowest cost, and shortest lead time through the total elimination of waste.

Although the class is not required, it is strongly suggested to be taken as a technical elective. IOE 425 is worth two credits and meets for one half of the semester. It is offered both during the first and second half of the semester in both the fall and winter. As far as the workload is concerned, there are eight online quizzes, one online midterm, two group projects, and a closed-book final. The group projects make up 40% of your final grade so it's a good idea to work with people who share similar academic standards. The class is very popular and getting in is sometimes difficult, but I strongly suggest putting forth the effort to take advantage of this opportunity!

## Finance 300 Review

By Tiger Li

The end of the semester is nearing (thank goodness) and it's almost time to start registering for next fall's courses. If you're interested at all in money and investing, I would highly recommend taking Finance 300. It's also an excellent opportunity to fulfill 3 technical elective credits.

Professor Lu Zheng does an excellent job of illustrating concepts – her style of teaching is very unhurried and she never leaves students confused. As a result, though, lectures can get a little boring. Homework assignments are weekly and take only an hour or two to complete. The material on the exams is of the same difficulty as the homework, so there are no big surprises on test day. Overall, it's a very light workload for 3 credits and certainly is no challenge for an IOE.

The course itself is an introduction to the fundamentals of financial markets, such as stocks, bonds, and the basic tools used to make financial decisions. A lot of the material in the beginning will be review from IOE 201 – much of the first half of the term is spent on time value of money and concepts such as NPV and IRR. The later half of the term is spent on more interesting topics such as capital assets pricing model and market efficiency. The knowledge you gain will definitely come in handy if you plan to pursue business or financial engineering in the future. If the course has any disadvantages, it would be the expensive book and required financial calculator, which together total about \$180 new. But if financial management piques your curiosity, I think the course would serve as a great compliment to your engineering education.



## Random LS&A

By Sarah Kamilaris

As an incoming freshman, I was looking for a filler class that was interesting and easy. Somehow, I came across Modern Greek 101, and I registered for it. The following semester I took Modern Greek 102. As a junior, I'm still taking Modern Greek and I don't regret it. I actually enjoyed all the semesters I have taken of Greek.

The classes have ranged from 7 – 13 people, and I have had the same teacher for all 6 classes. There are daily homework assignments that never take too long to do. And there are two exams, which are sometimes take-home. As you can see, the workload isn't bad.

Furthermore, Modern Greek has been nothing like the engineering, science and math classes I've taken, which are problem based. Primarily there is only one way to solve the problem, and one way to receive full credit. But in Modern Greek, it's nothing like that. I'm challenged to not only come up with an answer, but to go about it in my own way. I'm challenged to develop my own ideas and opinions.

I challenge all of you to take some random LS&A class that interests you. The class will be a complete change from what you're used to. And there's a good chance it will not only be easy, but extremely beneficial.

# From the University of Michigan Registrar's Website: Fall 2006 Industrial and Operations Engineering Time Schedules

Course Title	Cat#	Cr	Prereqs	Lab Fee
CLASS# CODE CMP SEC	DAYS	CLASS TIME	LOCATION	INSTRUCTOR

Econ Dec Making	201	2.00		
10849 P R LEC 001	MW	830-1030	1610 IOE	
IOE 201 MEETS FIRST HALF OF TERM.				

Operations Modeling	202	2.00		
10850 P R LEC 001	MW	830-1030	1610 IOE	
IOE 202 MEETS SECOND HALF OF TERM.				

Prob & Stat Engr 265	4.00			
STUDENTS ARE AUTO-ENROLLED IN LECTURE WHEN THEY ELECT A LAB.				
10851 A R LEC 001	MW	1030-12PM	1610 IOE	Garcia-Guzman
10852 P R LAB 002	TH	830-930	G610 IOE	
10853 P R LAB 003	TH	930-1030	G610 IOE	
10854 P R LAB 004	TH	1030-1130	G610 IOE	
10855 PIR LAB 005	TH	1130-1230PM	G610 IOE	
10856 P R LAB 006	TH	1230-130PM	G610 IOE	
10857 P R LAB 007	TH	130-230PM	G610 IOE	
10858 P R LAB 008	TH	230-330PM	G610 IOE	

Intro to Optim Meth	310	4.00		
STUDENTS ARE AUTO-ENROLLED IN LECTURE WHEN THEY ELECT A LAB.				
10859 A R LEC 001	TTH	9-1030	1610 IOE	
10860 P R LAB 002	W	930-1030	G610 IOE	
10861 P R LAB 003	W	1030-1130	G610 IOE	
10862 P R LAB 004	W	1130-1230PM	G610 IOE	
10863 P R LAB 005	W	1230-130PM	G610 IOE	
10864 P R LAB 006	W	130-230PM	G610 IOE	
10865 P R LAB 007	W	230-330PM	G610 IOE	

Intro Markov Proc	316	2.00		
10866 P R LEC 001	TTH	1030-12PM	1610 IOE	
P R LEC 001	F	1230-130PM	1610 IOE	
IOE 316 MEETS SECOND HALF OF THE TERM.				

Ergonomics	333	3.00	P/A IOE 265	
10867 P R LEC 001	MW	12-130PM	1610 IOE	Liu

Ergonomics Lab	334	1.00	P/A IOE 333	
10868 P LAB 001	M	330-6PM	G699 IOE	
10869 P LAB 002	T	130-4PM	G699 IOE	
10870 P LAB 003	T	430-7PM	G699 IOE	
10871 P LAB 004	T	730-10PM	G699 IOE	
10872 P LAB 005	W	130-4PM	G699 IOE	
10873 P LAB 006	W	430-7PM	G699 IOE	

Linear Stat Models 366 2.00  
 IOE 366 MEETS FIRST HALF OF TERM. STUDENTS ARE AUTO-ENROLLED IN LECTURE  
 WHEN THEY ELECT THE LAB.

10875	A R	LEC	001	TTH	1030-12PM	1610 IOE	Jin
10876	P R	LAB	002	M	930-1030	G610 IOE	
10877	P R	LAB	003	M	1030-1130	G610 IOE	
10878	P R	LAB	004	M	1130-1230PM	G610 IOE	
10879	P R	LAB	005	M	1230-130PM	G610 IOE	
10880	P R	LAB	006	M	130-230PM	G610 IOE	
10881	P R	LAB	007	M	230-330PM	G610 IOE	

Data Processing 373 4.00 ENGR 101  
 STUDENTS ARE AUTO-ENROLLED IN LECTURE WHEN THEY ELECT A LAB.

10882	A R	LEC	001	TTH	5-630PM	1610 IOE	Reaume
10883	P R	LAB	002	F	930-1030	G610 IOE	
10884	P R	LAB	003	F	1030-1130	G610 IOE	
10885	P R	LAB	004	F	1130-1230PM	G610 IOE	
10886	P R	LAB	005	F	1230-130PM	G610 IOE	
10887	P R	LAB	006	F	130-230PM	G610 IOE	
10888	P R	LAB	007	F	230-330PM	G610 IOE	

Work Organizations 421 3.00  
 10889 P R LEC 001 WF 130-3PM 1610 IOE Likier

Entrepreneurship 422 3.00 SR.STD.  
 10841 P LEC 001 TTH 230-4PM G906 COOL Ludwig  
 NOT FOR GRADUATE CREDIT.

Practicum Prod & Srv 424 4.00  
 10890 P R LEC 001 T 5-7PM 133 CHRYS Cristiano

Mfg Strategies 425 2.00  
 10891 P R LEC 001 MW 330-530PM 1610 IOE Anderson  
 SECTION 001 - MEETS FIRST HALF OF THE TERM.  
 10892 P R LEC 002 MW 330-530PM 1610 IOE Spiegel  
 SECTION 002 - MEETS SECOND HALF OF THE TERM.

IE Istrument Meth 432 3.00  
 STUDENTS ARE AUTO-ENROLLED IN LECTURE WHEN THEY ELECT A LAB.  
 23117 A R LEC 001 TH 3-5PM G699 IOE Woolley  
 23118 P R LAB 002 F 9-11 G699 IOE Woolley  
 23119 P R LAB 003 F 1130-130PM G699 IOE Woolley

Prod & Inv Contrl 441 3.00  
 10893 P R LEC 001 TTH 3-430PM 1200 EECS

Facility Planning 447 3.00  
 10894 P R LEC 001 MW 12-130PM 133 CHRYS Bozer

Corporate Finance 452 3.00  
 21939 P R LEC 001 TTH 3-430PM 1610 IOE Babich

Decision Analysis 460 2.00  
 20568 P R LEC 001 TTH 5-7PM 1680 IOE Bordley  
 MEETS FIRST HALF OF THE TERM.

Quality Engin Prin 461 3.00  
 21862 P R LEC 001 TTH 9-1030 1500 EECS Hammett

## How Your Registration Time Is Determined By Franklin Jen

Some people are more aware of this than others. Here's how registration times are determined (from the University of Michigan Registrar's Website):

Students are first identified as Graduate or Undergraduate Students and are placed in the appropriate sets for assignment. Within the Graduate and Undergraduate sets, students are separated into seven registration priority groups based on their credit toward program (a combination of coursework successfully completed at U of M, "AP" credit, and/or transfer credit, if applicable) plus current term elected hours:

Group 1: 100 or more  
 Group 2: 85-99  
 Group 3: 70-84  
 Group 4: 55-69  
 Group 5: 40-54  
 Group 6: 25-39  
 Group 7: 24 or below

Appointments are then assigned within the priority groups randomly.



Stat Quality Control	466	3.00					
10896 P R LEC	001	TTH	130-3PM	1610 IOE	Shi		
Simulation	474	4.00					
STUDENTS ARE AUTO-ENROLLED IN LECTURE WHEN THEY ELECT A LAB.							
10897 A R LEC	001	TTH	12-130PM	1610 IOE	Tsimhoni		
10898 P R LAB	002	T	9-10	G610 IOE			
10899 P R LAB	003	T	10-11	G610 IOE			
10900 P R LAB	004	T	11-12PM	G610 IOE			
10901 P R LAB	005	T	130-230PM	G610 IOE			
Practicum Hosp Sys	481	4.00					
10902 P R LEC	001	M	7-9PM	1680 IOE	Coffey		
UG Directed Study	490	2.00-4.00		PER. INSTR.			
I IND +		ARR		ARR			
Spec Top Ind Engr	491	3.00					
23317 P LEC	007	TTH	1030-12PM	1680 IOE	Armstrong		
Measurement and Design of Work							
PREREQS: IOE 333 or ME 395 or BME 231 and IOE 265/STATS 412 or Permission of Instructor. 3 CREDITS.							
22945 P LEC	017	MW	130-3PM	1680 IOE	Sharma		
Decision Support Systems							
PREREQS: IOE 310 and 373. 3 CREDITS.							
Senior Des Proj	499	4.00		SR.STD&P.I.			
I IND +		ARR		ARR			

## Concert Review: Ben Folds Rocks Ann Arbor with Rhythmic Support

By Adam Clarke

Venue: Michigan Theatre | Date: March 18, 2006

This being the third time that I've seen Ben Folds Live, I was really expecting a lot from the show. The Georgia native, piano virtuoso is something of a spectacle on stage and is known for his humor and rowdiness during concerts. Being a huge Ben fan myself, I thought I knew what was in store for the concert more or less and had been hyping it to my friends who came along with me. To my surprise, two additions to the usual solo piano setup were apparent on stage as we made our way to our seats. A full, elevated drum kit and bass setup were also meticulously put together with respective set lists. For those who don't know, Ben used to be the leader of "The Ben Folds Five", a group comprised of Ben on lead vocals and piano, a drummer and a bassist who both provide backup vocals and instrumentals. However, the band broke up in the late nineties and Ben had moved on to solo performances of songs he had done with the five. My one complaint with these performances (the 2 I had seen previously) was that they lacked the all around quality of studio tracks by the five. I always thought that Ben would have the ability to really enjoy a concert more if some of the weight of the show was spread out to other musicians backing him up. Also, a rhythm section seemed like the perfect match to Ben's pop vocal and piano lines.



My wish came true that night as 3 men walked out on stage and completely rocked the house. Ben did many of his favorites, including "Army," "Zak and Sara," and "One Angry Dwarf" as a closer before the encore. However, the backup allowed him to do many of my personal favorite BFF songs that I had only heard on my iTunes. Songs like the "Theme From Dr. Pyser," "Annie Waits," and "Narcolepsy" sounded absurdly good with drum fills and killer baselines. Ben ended the show by slamming his stool into the piano keys and breaking his pedestal in the process. He did a great rendition of a Dr. Dre song which included every vulgarity in the book. He really lit up the stage and the crowd while having fun doing it. My dream was fulfilled and he seems a lot more complete with the rhythmic support he deserves.

# Ann Arbor Tour de Nacho

By Steven Agacinski

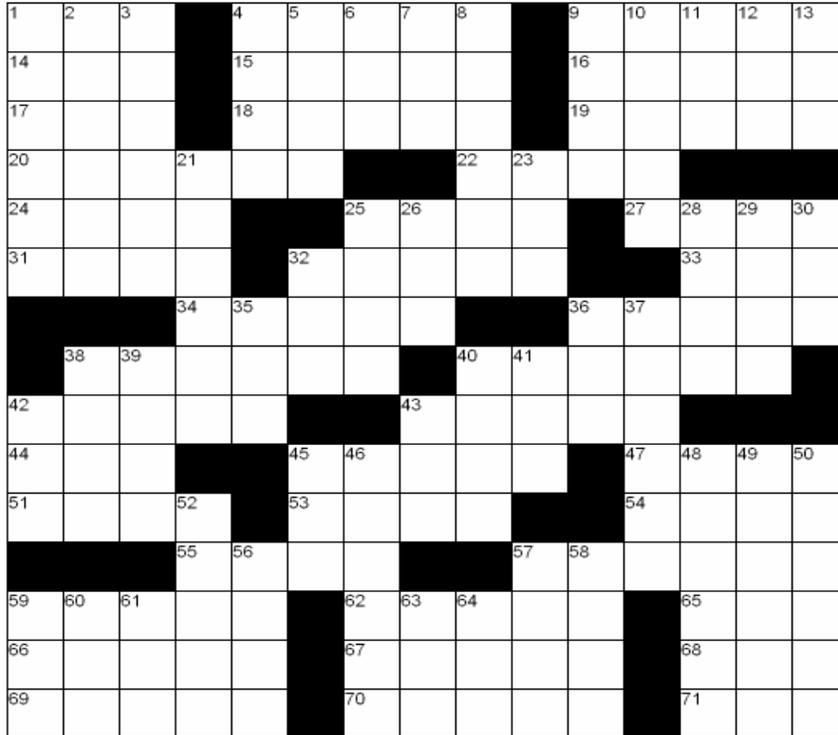
Nachos are a fantastic food, expertly combining any number of natural and synthesized ingredients to result in pure deliciousness. Since nachos are available in so many Ann Arbor restaurants, a small group decided that the nachos from Ann Arbor required some sort of ranking. Hence: the Tour de Nacho. This stroke of genius was devised by my brother, Ken. The idea is simple, but brilliant: Ken Agacinski, Maureen Brennan, and I go to all the different restaurants in Ann Arbor and order their nachos. Then, we eat them and give them a letter grade. Perhaps it wasn't the most in-depth plan, but steps are completely effective in determining the pinnacle of awesomeness for the Ann Arbor nacho. We have toured Ann Arbor extensively in the quest to find the best nachos; and clearly there exists a solid contingent of good nachos to be had here.

**Grading Criteria:** There are many things to be considered when handing out the grades for nachos. Everyone should know that our official grades are not given out lightly. In order for a plate of nachos to receive the grade "A", they need to be of a variety that would make them world class. That is, the 'A' nacho would require no modifications; no negative comments or thoughts. This point is essential to understanding the overall grading scheme. There are many different factors that affect the grade. These include taste, size to cost ratio, variety of toppings, topping distribution on the plate, quality of toppings, quality of chip, and overall presentation. With all these factors taken into account, we can then judge the nachos. Ken claims he had some 'A' nachos when he visited Baltimore last summer, but I have yet to experience such a treat. The nearest I have come is Margarita's, located on Woodward near 12 Mile. They received an A-. However, this is not in Ann Arbor, so it is not included in the Ann Arbor Tour de Nacho. Official Tour de Nacho Rankings:

Restaurant	Grade	Comments
<b>The Arena</b>	<b>A-</b>	Arena Nachos were a bit of a sleeper surprise. We didn't try them until late in the Tour, but they were pretty outstanding. There could have been slightly larger amounts of gooey melted cheese, but in general, the nachos for that day were among the best we had. Quantity, cost, presentation, and service were all surprisingly great for the Arena.
<b>Sabor Latino</b>	<b>B+</b>	Excellent nachos, all in all; however, the lack of lettuce is noticeable, and it makes the sheer quantity seem diminished
<b>Brown Jug</b>	<b>B+</b>	What they lack slightly in quality, they make up for in quantity. They can be slightly messy to eat.
<b>Pizza House</b>	<b>B</b>	Good serving size for cheap; however, the ingredients are not of the highest quality and the topping distribution can sometimes be limited.
<b>Buffalo Wild Wings</b>	<b>B</b>	After several thwarted attempts to have their nachos, we finally made it into the restaurant on the third try. They were quite good, as they contained an interesting mixture of real AND fake nacho cheese. Definitely interesting. To add to the intrigue, they had blue tortilla chips. However, their serving size wasn't exceptional, and the quality of ingredients wasn't of a standout nature.
<b>Ashley's</b>	<b>B-</b>	Very fresh ingredients. The vegetables seemed as though they had just been picked; however, they were expensive and the serving size was quite small. There was an option of chicken or beef to come with the nachos, which was definitely a plus
<b>Red Hawk</b>	<b>B-</b>	Much the same as Ashley's with even <i>better</i> toppings. The nachos themselves were good, yet they were again expensive for not that many chips
<b>Ann Arbor Brewing Company</b>	<b>C+</b>	Really, there was nothing about these nachos that made them stand out. They were just sort of plain, with a slightly larger-than-Red Hawk/Ashley's serving size. But they weren't all that distinct.
<b>Bowling Alley</b>	<b>C</b>	For the cost, definitely worth it. But clearly the toppings aren't the best, they are ridiculously messy, and the chips could have used some intense work
<b>Good Time Charlie's</b>	<b>D</b>	Where to begin....Charlie's nachos have tons of room for improvement. They lack anything to distinguish them from some junk I could throw together at home in no time flat. The nachos were served cold, the chips were just bagged tortilla chips that had been singed, and it took forever to get the nachos served. We were very dissatisfied.

# The Back Page

## Wow. Oh wow.



### Across

1. Car
4. Rendezvous
9. Struck
14. Spanish "one"
15. Japanese poem
16. Fable
17. Box
18. Unfasten the pins of
19. Clerk
20. In the middle
22. Northwest by North
24. World Organization
25. Location
27. Attorney (abbr.)
31. Adagio
32. Retort
33. To be in debt
34. Rage
36. Big businessman
38. Music player

40. Grins
42. Alarming
43. Capital of Bangladesh
44. Puppy
45. Growing older
47. Knocks
51. A cozy room
53. Draw
54. Unattractive
55. Eye
57. Religious song book
59. Mediterranean island
62. Vapor
65. Hovercraft
66. Housekeeping task
67. Elixir
68. British drink
69. Birds that make a gaggle
70. Inscribed pillar
71. Gray sea eagle

### Down

1. Cigars
2. Wild beast
3. Tuna fish
4. Because of this
5. Jabber
6. Shriek bark
7. Slide on snow
8. The Lincoln, for example
9. Prick
10. \_\_\_ Carta
11. Roberto's yes
12. Decade
13. Eastern Time
21. Diviner
23. Route
25. Air (prefix)
26. Revolutions per minute
28. Ripped up
29. Duces
30. Japanese money
32. Seafood
35. Attempt
36. Pen brand
37. Noisy situation
38. Scoot
39. Sticky fastener
40. Sensible
41. Metric weight unit
42. Resort hotel
43. Director (abbr.)
45. Entire
46. Invited people
48. Male relation on father's side
49. Valuable mineral holder
50. Abounding in woods
52. Musical tones
56. Wide open
57. Frozen rain
58. Young Men's Christian Association
59. Chinese seasoning
60. Respect
61. Downwind
63. Child
64. East northeast

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*Note: The opinions expressed herein do not necessarily reflect those of the Industrial and Operation Engineering Department at the University of Michigan—Ann Arbor. Any questions or comments should be submitted to IOEBlueprintGroup@umich.edu*

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