

Industrial Blueprint

-The IOE Student Newsletter-

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Brought to you by APM and IIE

November 2006

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Upcoming Events

November 22	Second Fall Half-Term Drop/pass/Fail Deadline (i.e. IOE 202, 316, 425)
November 23	Thanksgiving
November 27	Registration Begins for Undergrads
December 11	Lean Office Certificate Program

A Few Words From the Editor . . .

Course reviews and food. Apparently most of this issue's article writers were either very hungry or taking some exciting technical elective, and in each case they wanted to share experiences with all of you! Thanksgiving Break is here, so enjoy your time off (or enjoy your time in class) with the November issue of the Industrial Blueprint before that final stretch run through the end of semester.

Weather is getting colder and the leaves are collecting in masses across campus. We've been fortunate enough to avoid massive snowstorms so far, but everyone better huddle up and make use of the recipe articles in the Blueprint. To stay full through those winter storms. We had so many recipes (ok, 3) that an entire section of this month's issue is devoted to food.

On a different note, registration is coming up (see Upcoming Events) and we're all looking for classes to take. Check out this month's course review extravaganza if you want some insider tips on some of the most popular technical electives (as well as some totally obscure classes you could take!).

Best wishes,
Franklin.



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

IOE Student Societies

Alpha Pi Mu (APM)

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

The only nationally accepted industrial engineering honor society, APM membership is based on GPA. All students with junior or senior standing are considered. APM sponsors numerous events every year; highlights from last year include the IOE Bar Crawl and IOE t-shirt sales.

Engineering Global Leadership (EGL) Honor Society

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

EGL is a five-year program that combines engineering curriculum with courses in the Business school and LS&A, culminating in a Bachelor of Science degree and Masters degree in Engineering. EGL is designed to help students improve the bridge between business and engineering in industry, as well as give its members a cultural background to work in an increasingly global market. EGL is no longer an IOE/ME only honor society, but its membership features plenty of IOEs.

Human Factors and Ergonomics Society (HFES)

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

Nationally, HFES is a professional society whose mission is to “promote the discovery and exchange of knowledge concerning the characteristics of human beings that are applicable to the design of systems and devices of all kinds.” The student chapter at Michigan leads multiple Center for Ergonomics lab tours and attends conferences throughout the year.

Institute of Industrial Engineers (IIE)

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

Another society with links to a national professional society, IIE’s main goal is to “provide an awareness of the Industrial and Operations Department and its resources” at Michigan. The student chapter acts as a conduit to the local Detroit IIE chapter and a networking hub for all IOEs at U of M. IIE sponsors plant tours and features corporate speakers at meetings.

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/>

Engineers Can Cook! - A Monthly Special By Miranda Olds

November's Recipe: **Monkey Bread**

****Great as a late night college snack and easy to make too!**

Ingredients:

- ✦ 1 tube of Pillsbury dinner rolls dough
 - ✦ 1/4 cup sugar
 - ✦ 1 Tbsp. cinnamon
- 1/4 cup unsalted butter, melted

Procedure:

Preheat oven to 350°F. Cut each piece of dough into 4 pieces. Roll each piece into a ball. Combine sugar and cinnamon in a bowl. Dip each dough ball into butter and then into sugar mixture. Place balls in a 8x8 baking pan, or a bundt pan. Bake for about 20 minutes or until golden brown.



Oreo Cheesecake Recipe

By Aaron Chow

Dear fellow IOE students,

If you are bored, and want to get in touch with your inner self, this is the thing for you to do! Bake a cheesecake! A proven recipe (by myself), it is delicious and takes no more than an hour and a half!



Ingredients

1 pkg. (1 lb. 2 oz.) OREO Chocolate Sandwich Cookies, divided
 1/4 cup (1/2 stick) butter, melted
 4 pkg. (8 oz. each) PHILADELPHIA Cream Cheese, softened
 1 cup sugar
 1 tsp. vanilla
 1 cup BREAKSTONE'S or KNUDSEN Sour Cream
 4 eggs

PREHEAT oven to 325°F if using a silver 9-inch springform pan (or to 300°F if using a dark nonstick 9-inch springform pan). Place 30 of the cookies in resealable plastic bag. Flatten bag to remove excess air, then seal bag. Finely crush cookies by rolling a rolling pin across the bag. Place in bowl. Add butter; mix well. Press firmly onto bottom of pan.

BEAT cream cheese, sugar and vanilla in large bowl with electric mixer on medium speed until well blended. Add sour cream; mix well. Add eggs, 1 at a time, beating just until blended after each addition. Chop or crush remaining cookies. Gently stir 1-1/2 cups of the chopped cookies into cream cheese batter. Pour over crust; sprinkle with the remaining chopped cookies.

BAKE 1 hour and 10 min. or until center is almost set. Cool. Refrigerate 3 hours or overnight. Cut into

The Engineering Chef @ Work

By Jian Wei Por

Thinking what to do over winter break? Tired of dining out and eating the same cooked food everyday? Tired of hearing the neighbors or your friends say engineers can't cook?

Don't fret! Here is a recipe to get you started learning over the break. There's even a website called Cooking for Engineers: <http://www.cookingforengineers.com> So whip out the frying pan, baking trays and showcase your cooking skills IOE!

Baked Salmon

Ingredients

2 cloves garlic, minced
 6 tablespoons light olive oil
 1 teaspoon dried basil
 1 teaspoon salt
 1 teaspoon ground black pepper
 1 tablespoon lemon juice
 1 tablespoon fresh parsley, chopped
 2 (6 ounce) fillets salmon



Directions

In a medium glass bowl, prepare marinade by mixing garlic, light olive oil, basil, salt, pepper, lemon juice and parsley. Place salmon fillets in a medium glass baking dish, and cover with the marinade. Marinate in the refrigerator about 1 hour, turning occasionally.

PREHEAT oven to 375 degrees F (190 degrees C).

Place fillets in aluminum foil, cover with marinade, and seal. Place sealed salmon in the glass dish, and bake 35 to 45 minutes, until easily flaked with a fork.

(112 cookies), and I doubt that anybody will want to make that many cookies, but we are all engineers and know how to divide. Anyway, here it is:

NEIMAN MARCUS COOKIES

Ingredients

2 (500 ml) cups butter
 24 oz. (680 g) chocolate chips
 4 (1000 ml) cups flour
 2 (500 ml) cups brown sugar
 2 tsp. (10 ml) (Bicarb) soda
 1 tsp. (5 ml) salt
 2 (500 ml) cups sugar
 18 oz. (500 g) Hershey Bar (grated). (Cadbury chocolate for Australians, UK & South Africans)
 5 (1250 ml) cups blended oatmeal
 4 eggs
 2 tsp. (10 ml) baking powder
 2 tsp. (10 ml) vanilla
 3 cups (375 ml) chopped nuts (optional)

1. Measure oatmeal, and blend in a blender to a fine powder.
2. Cream the butter and both sugars.
3. Add eggs and vanilla, mix together with flour, oatmeal, salt, baking powder, and Bicarb (soda).
4. Add chocolate chips, Hershey Bar, and nuts.
5. Roll into balls, and place two inches apart on a cookie sheet.
6. Bake for 10 minutes at (180 °C) 375 degrees.

The above quantities make about 112 cookies.

Enjoy!

Holiday Cooking Recipe

By Carlo Spagnuolo

The holiday season is just around the corner. I received an email with this chocolate chip cookie recipe a few weeks ago and decided to share it with all of you. It is from Neiman Marcus so these will be some high quality gourmet cookies and should impress your guests. The recipe makes big proportions

Course Review Section

IOE 491 Course Review (formerly IOE 422)

By Brian Winokur

The basis of this class is to give students that are interested in starting their own business an idea of what it takes. Specifically the class focuses on the composition of a business plan and the generation of ideas for markets in a selected third world country.

If you are looking for a “blow off” class for your senior year where you put in little effort and time, DO NOT take this class. There are weekly assignments that you must take seriously to get anything out of the class. However, if you are looking for a class to invest some time and learn about yourself and your fellow classmates this is for you.

Professor Ludwig has a different teaching style than most other classes. Instead of using lecture slides, filled with jargon and technical information, he teaches with stories and experiences. Furthermore, the homework is not doing problem sets or writing technical papers; it always involves experiencing something and writing about it for the class to share with. Hence, not only are you learning from the professor’s experiences with entrepreneurship, but you are learning from your own experience and those of your peers. Overall, I am glad I am taking this class, and am excited to see where it leads me!

IOE 436 Course Review

By Maureen Brennan

IOE 436, Human Factors in Computer Systems, is a 3-credit course taught by Prof. Paul Green which fulfills Tech Elective requirements. The class is part of the ergonomics grouping of tech electives and is a good course to take if you like IOE 333 or 334 and want to learn more. After taking IOE 333 I was really interested in studying more cognitive ergonomics and this class is probably the best undergraduate class in the department to get more exposure to the cognitive side of human factors. Although there is a focus on cognitive ergonomics in the class, some physical ergonomics topics are covered such as eye strain and carpal tunnel syndrome.

The coursework for the class consists only of periodic group projects, with the exception of two small individual assignments. With a good group, the projects should not be too difficult, although they are generally pretty time consuming. For one project, for instance, your group needs to perform experiments in order to assess how people of different ages use technology while driving. The most difficult part of the experiment is that your group needs find at least one test subject over the age of 65 - a requirement which can pose problems for people without elder family members who live in the area. Even though it was pretty funny seeing my 83-year-old grandfather try to dial a cell phone while playing Cruisin' U.S.A. at Pinball Pete's, it was hard to get him out to Ann Arbor. Another difficult assignment was developing a user-friendly website. No one in my group had ever developed a website before, so this was particularly challenging. In the end though, it was good experience to have.

Another requirement of the course is attending the SAE conference in Detroit. Even though it can be tough to coordinate rides and find a time to go, it actually was cool to see some of the stuff we learned in class being discussed among professionals. So, while there are some minor annoying requirements for the class, they are made up for by the fact that there are no exams and generally high final grades. I would definitely recommend this class for anyone who is interested in human-computer interaction or user-centered design or who is just looking for an interesting tech elective.

TechCom 380 Course Review

By Maria Blasco

If you want to graduate with a B.S.E. in Industrial and Operations Engineering, you will have to take (and pass) TechCom 380. Prerequisites for this class are IOE 366 and IOE 373 (I have absolutely no idea why these are prerequisites, seeing as neither deal with professional writing). TechCom 380 will teach you everything you need to write technically and professionally in an IOE environment (a.k.a. your future job). This is a 2 credit class, meaning 2 hours of your week will be spent in lectures, as attendance is mandatory. The lectures are posted on Ctools, so it’s alright if you have to spend class time zoning out or improving your crossword / Sudoku skills. However, some days have mandatory participation, usually via groups of students who are as equally annoyed to be there as you are. You will have to write several papers (memos, proposals, final reports, resumes, etc.), most of which you will need to write for Senior Design anyway, so practice while you can.

On the bright side, there are no exams (sweet!). I would recommend scheduling this class in a “hard” semester, as it does not have a huge time requirement (you can complete all your assignments in a couple of hours the night before). Finally, let me just say this: Mary Lind is very good at what she does. This means that you will have to proof read like crazy, include all required elements, and apply all the topics covered in the class in order to receive a good grade on your assignments.

MSE 220 Course Review

By Alex Wang

If you're still looking to take a non-IOE engineering elective, then look no further! MSE 220 is definitely the class for you. This is the official description that the course guide gives out:

Prerequisite: Chem 130 or Chem 210. I, II (4 credits)

Introduction to materials engineering and materials processing in manufacturing. Properties of metals, polymers, ceramics, and electronic materials. Correlations of these properties with: (1) their internal structures (2) service conditions and (3) processing.

Now here's the real dirt. MSE 220 by itself is a relatively easy course that covers a broad range of topics in a very superficial manner. The content of the class is actually pretty interesting and relevant to the real world in general (although maybe not in our future industrial vocations). Ultimately, the one thing they really want you to take away from the course is that "the structure of materials affects their properties". So now you know that piece of

information, you're pretty much set for half of the semester.

Despite that, don't completely blow it off because you should all be able to get at least a B+ in this class so make sure to still study! Classes are usually three days a week with another day for discussion. However, they started to record the lectures this semester and put them online (a la IOE 461) so you can watch those in case you can't make a lecture. Homework is pretty straightforward and due on a weekly basis. Depending on your professor (I had Professor Joanna Mirecki Millunchick), you may also have quizzes given throughout the semester. There were three exams which were non-cumulative and allowed a one-sided sheet of handwritten notes.

With all this in mind, please consider MSE 220 as a possible non-IOE engineering elective! I strongly encourage it, and if you don't like it... then at least you'll understand this joke – "Two semi-conductor crystals walk in to micro-gravity. One crystal looks at the other and asks, 'Does this lack of fluid motion make me look fat?'"

ChemE 230 Course Review

By Alexander Manning

So you need to fill that tech elective requirement, and don't know which one to take. Maybe you already took MSE 220 and NERS 211, and now you need to find a class to fill that last tech elective requirement, or you just want a class that you think is interesting. Although I do not know your preference in classes, I can give you a general idea of what it is like to take ChemE 230.

ChemE 230, as the title of the course states, is literally just material (flow) balances. You might say "Hey I enjoyed Chem 130, why not try ChemE?" and you would not be the first person to say that, including the majority of the chemical engineering sophomores in the class. This class however involves no real chemistry, beyond that of basic reactions; it is just flow balances, and more flow balances. The class starts off with learning about converting grams to pounds, and all that fun stuff, but then quickly goes to flow rates. You start off with chemicals mixing, and balancing the flow rates, to chemical reacting, and balancing the flow rates given the number of atoms, and then it gets exciting, you balance flow rates given temperature and pressure.

The two biggest questions going through anyone's mind when picking tech electives are (a) Is it interesting, and (b) Is the class easy. As you can tell I don't really think the subject matter is that interesting, but it is still not horribly boring. The class is basically bearable: you don't love going to class, but I am sure you have taken worse. The second question is tougher to answer. The subject matter is not particularly hard as long as you keep up; however, there is a lot of work for the class. So far I have had two team projects, four team homeworks (which are long), along with weekly homework. I am sure there are classes with more work, but let's be honest, it is not something you want to deal with when taking other time consuming courses, such as 373.

Basically if you want a tech elective that you can get a good grade without much work, this is not the class. If you are looking for a challenge, or want to learn something useful, I am sure there are better non-IOE engineering electives. The class is not horrible, and I am not saying you shouldn't even consider taking it, but I can tell you there are better classes out there, that you can get more out of.

ME 211 Course Review

By Jeremy Chan

ME 211 is said by many to be the easiest ME class in the ME catalog. It is no wonder that it is such a popular choice among IOEs every semester. However, the course is not as easy as it seems. The course workload gets particularly hard to understand during the second half of the semester.

If you have prior knowledge of mechanics, it will be of great assistance in understanding the material. The textbook used is the "Statics and Mechanics of Materials" by R.C. Hibbeler. As explained by the book's title, the course covers how materials move, rotate, twist, bend, deform etc, when forces are applied to them. A certain amount of calculus is involved in the course, as well as routine formulas and calculations. The concepts learned are really pretty interesting, but I feel the details are quite inapplicable unless you are a mechanical engineer.

As with all courses, the professor teaching the class is very important. Ask seniors and friends who have taken the class before and pick one that is able to engage your attention, so that the material does not become boring to you halfway through the semester when it gets rather dry.

Special: \$\$\$\$

Not surprisingly we had a few reviews on classes related to economics or cash flow... I've heard somewhere that IOE's like money...

Econ 330 Course Review

By Jared Davis

Tired of all that tedious work in those engineering classes? Want a class in LSA that relates to that IOE degree you may or may not be finishing off in your four years at UM? Then search no more, because there is a perfect match for you – Econ 330: American Industries. This class is taught by the golden-apple-winning, crushed-peanut-doughnut-eating, no-notes-using, superman of a professor Jim Adams. Now I know what you are thinking, “Why would I want to take an upper level Economics class if I’m not getting a minor in Economics?” Let’s just say that Jim Adams is ‘bringing sexy back’ ... to the economics department.

First, this four credit class meets on average only three hours a week! Yes you heard right, two hour-and-a-half lectures a week and only six section meetings over the course of the whole semester. Second, you learn about the beer industry, that’s right, beer, enough said. But seriously, this guy actually makes his class interesting and the lectures are always full. An econ class ... full! Not to mention there is always a waitlist during registration. Just check out the reviews and you’ll see – American Industries is the class for you.

Finance 629 Course Review

By Brian Winokur

Finance 629, Financial Research Commercialization, is a multi-disciplinary class offered in the Stephen M. Ross School of Business. The top research professors at the University and some outside startup companies approach Professor David Brophy with their preliminary business plans, and he chooses the top 15 for the class. Immediately these professors and companies present their ideas and strategy to the class identifying what is missing from their plan. Afterwards, students bid on the projects that they are interested in. Groups are created with the intention of diversity of major of the students. For example, my group contains a first year Law student, a student studying for his PhD in Bio-Chemistry, a Masters in Hospital Management student, a B.B.A, and me, the IOE.

The company that I chose (my first choice) is a bio-technology startup in Ann Arbor that is getting ready for their first round of Venture Capital Funding. They have already received \$12,000,000 dollars of grant funding (based solely on technology, not marketability), and have a solid executive board and business plan. They came to Professor Brophy because they wanted help finalizing their design, recognizing markets they overlooked (other uses for their technology), and most importantly finding a well-matched Venture Capital firm to invest an additional \$4,000,000 dollars in them.

Overall, Finance 629 is an amazing class because it gives you the opportunity to work with a startup company without any risk. Additionally, they take your ideas and recommendations seriously and allow you to make an impact. I would definitely take this class again if I had the opportunity.

Accounting 471 Course Review

By Yat Chiu Yeung

Accounting 471 is designed to provide students majoring in non-business fields with an understanding of business transactions and the fundamentals of the accounting systems used to record and report the financial data of business entities. The emphasis of this class is on basic accounting principles and concepts as well as and their application to the financial statement preparation process statements from a *user-oriented* perspective (as opposed to a *preparer-oriented* perspective). A lot of actual corporate annual reports and articles from the financial press are used in lecture and homework applications, so it is a very hands-on approach to learning basic accounting.

Three reasons why you should take this course include: 1) Everybody should have a basic knowledge of basic accounting, 2) you can count this class as a technical elective, and 3) it’s a B-school class (I mean, how hard can it get?) where the mean is set at a B+.

So for those of you who want to get into the business field, this class is a must-take. We should all have a basic knowledge of accounting in order to do business. It’s also good for your resume to say you have proficient knowledge in accounting as well, recruiters like well-rounded applicants! No seriously, taking this class will only boost up your GPA!



College of Engineering Vs. Ross Business School

By Amir Azer

The past two months have been extremely hectic for the upperclassmen of the College of Engineering. It would have been nearly impossible for students to miss the chaos that was the career fair at the end of September. Even though many students worked extremely hard on their resumes and appearance, was that enough for them to land the job of their dreams? Let's take a moment to compare the Engineering Career Resources offered by the College of Engineering and the Office of Career Re- ceives across campus at the Ross Business School.

Anyone who has used the HireME online application to try to find and schedule interviews with companies knows that it is poorly designed. The website is extremely difficult to navigate and scheduling interviews requires an adept skill of finding their way around the site. Most of the recruiters, when asked about the HireME portal, also complained about its difficulty of use. On the other hand, iMPact, the Business School's Online Portal, is much simpler to use and allows students to get instant resume resources, self-assessments to help pick offers, and simpler job searches. Their office also helps coordinate extensive career counseling sessions and workshops in order to help the Business School students plan a strategy to land their dream job, or at least put them on the right track.

In essence, the real difference between the Business School's Career Services and that of the College of Engineering is the networking opportunities presented to the students of the Ross Business School. Effectively, Ross gets their students through the corporate doors and let's them excel from there, where as the College of Engineering brings the recruiters here and you're on your own. For those reasons, of the 86.7% of the Ross graduating class that was seeking employment, 85% of them had offers by graduation time, and 90.6% had them within 3 months of graduating. On the other hand, the of the 786 engineering undergraduate graduates of 2005 looking for jobs, only 553 reported accepting a job offer; a strikingly low 70.3% as opposed to the 90.6% reported by Business students.

So even though the College of Engineering does a great job of bringing over 350 recruiters to campus annually, they lack the final push to allow their students to "seal the deal."

(Data was taken from Michigan Business School website and 2005-2006 Annual ECRC Report for the College of Engineering)

Michigan Football (it's a little outdated)

By Sean Little

November 18, 2006. Save the date. Mark your calendars. Set an alarm. It's not the apocalypse, but it very well could be the biggest day in college football for the decade and the century. November 18 is the first day that Michigan will face OSU undefeated since the storied national championship season of 1997. Not only will the two teams be undefeated, but they will be ranked #1 and #2. Not only will this game determine the Big Ten champion, but probably the national champion as well. If Michigan wins, this game will be noted as one of the greatest upsets in the Michigan/OSU rivalry. It will go down in the books right up with the classic of 1969, where Bo, in his first year at Michigan, defeated a #1 ranked Woody Hayes team and snapped a 22 game win streak for the Buckeyes. Thus started the "10 year war." This period pitted Michigan versus OSU with some of the best teams the two schools had ever had. At the end of the war, General Bo stood victorious with a 5-4-1 record against his mentor, Woody Hayes.

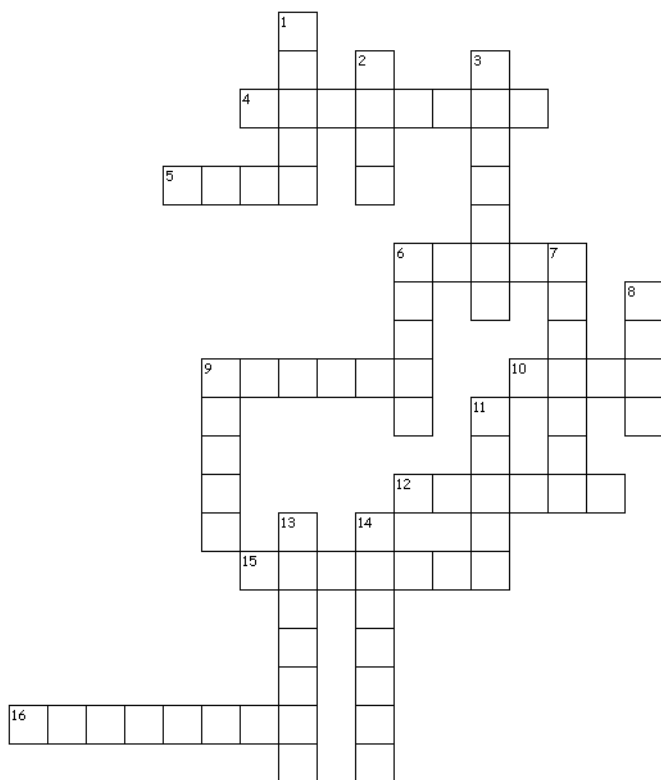
After the "10 year war," the Michigan/OSU rivalry entered a period of domination by the Wolverines. Enter the "John Cooper Era." During this era, Michigan went 10-2-1 versus the hated Buckeyes. Highlighted by a 313 yard rushing performance by "Touchdown" Tim Biakabataka in 1995 versus an undefeated #2 OSU team and the game-saving interception by Chuck Woodson in 1997 propelling Michigan to the Rose Bowl, this era gave us many great games in the heated rivalry. When John Cooper was fired for not being able to deliver victories against Michigan, Jim Tressel was hired to bring OSU back on track against Michigan. So far, he's done the job, going 4-1 versus the Wolverines. However, this is the year where it could all turn around. There are only two stops left on Michigan's "Revenge Tour '06" and OSU is one of them. Be prepared for a hard hitting and defensive battle in the 'Shoe. Moreover, be prepared to remember the greatest game you've ever witnessed as a Michigan student.

Michigan versus Ohio State. Greatest rivalry in all of sports. Number one versus number two. Game of the century. November 18, 2006.

The Backpage.

Notre Dame, UCLA, LSU, Florida State, Arkansas We're Counting On You.

Michigan Football Crossword



Created by [Puzzlemaker](http://Puzzlemaker.com) at Discovery-School.com

Crossword brought to you by Sean Little



Across

4. Current leader in punt return yards for Michigan.
5. Worst state ever.
6. The color of the jug awarded to the winner of UM/Minn.
9. Struck the Heisman pose after a punt return touchdown vs OSU.
10. Coach who is 1-4 vs OSU in last five years.
12. Maker of "The Catch" vs Indiana in 1982.
15. He's two sacks away from Michigan's season record.
16. It's the house that Bo built.

Down

1. He's "Super".
2. Best cornerback in the nation.
3. The last Heisman winner from Michigan.
6. Former UM quarterback, went to three Super Bowls with NE.
7. First in Michigan history in career passing yards.
8. Leads the rushing attack for Michigan.
9. Second in Michigan history in career passing yards.
11. Had over 51 carries and 219 yards vs MSU in 2003.
13. The legendary voice of Meechigan football.
14. Single handedly led the comeback vs MSU in 2004.

Bo Schembechler

April 1, 1929 - November 17, 2006

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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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