

The Challenger

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Our Campus

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Our Carbon Footprint

by Megan Saltenberger

Do you know what your carbon footprint is? I know I didn't. A carbon footprint is what imprint we leave on our environment. Our president, Dr. Kenneth Ender, signed the Green Initiative. The goal may seem abstract to you but it means Harper is on its way toward a neutral carbon footprint. The president and vice president, according to Professor Scott Cashman, current president of the Green Committee and Continuing Education professor, "are both fairly committed to turning the campus into a very sustainable place. To that end they, signed the President's Climate Commitment, which will eventually get the campus to have a zero carbon footprint."

The President's Climate Control is not specific to Harper College. Colleges and universities throughout America can participate. Many other college presidents have signed the initiative as well. There are three main parts that must be completed upon signing the commitment to becoming greener. According to The Presidents Climate Commitment website, the first involves creating a plan to move the college toward a carbon-neutral position quickly. The college must also initiate at least two different actions to reduce the carbon footprint while a greater overall plan is being considered. Finally, the college must make their plan and progress public. The Green Committee here on campus is fairly new, only in its second year. President of the committee, Scott Cashman, just took over the president's chair in September. The Green Committee here at Harper even has a facebook page. Their objectives are listed below.

Key Objectives	
1.	Establishment of a comprehensive recycling program
2.	Creation of alternatives to conventional transportation modes
3.	Utilization of green products and green practices for building maintenance
4.	Education of employees, students, and the community about environmental issues
5.	Utilization of environmentally sound food service practices
6.	Reduction of energy consumption and increased energy efficiency
7.	Conservation of water
8.	Creation of landscaping that promotes the health of ecosystems
9.	Research into sound environmental practices for the College
10.	Utilization of cleaner energy sources and fuel

I learned about my carbon footprint through a speech class I was taking. Environmental issues are important and they affect everyone. We live in the environment. We can't expect it to repair itself. It didn't get this bad overnight, and it won't get better overnight. I try to be environmentally conscious. I don't leave anything plugged in that I don't use. I turn off the lights when I don't need them. I used the online EarthLab Leading Carbon Calculator, where you answer questions about everyday usage. Despite the things I do, I still have a carbon output of 17.2 tons. That's higher than the average of the town I live in, Arlington Heights, which EarthLab quoted as having an average of 14.4 tons, and Illinois on average is 15.1. The quoted total for the United States is 15.5 tons.

A carbon footprint is measured by two categories. According to the website, our carbon footprint is measured by the fossil fuels we use, and the second part of our footprint is measured by what types of products we use. For example, the first part is directly linked to CO₂ emissions caused by us, such as what we use for heat, electricity, and gas.

We then have control over what types of products we buy and those products we buy emit CO₂ in their production and distribution. Do you use plastic bags? How much do you print? Do you buy products that are

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made using environmentally conscious practices? Calculating your carbon footprint is illuminating. Just like Harper College, we need to know where we stand before we can make any corrections.

While a lot of the 'big' things may help, the little things, the habits we have, will make the biggest impact on campus. If you have something that's easily recyclable... don't make someone force you to do so. There are many more recycling bins around campus. If you're looking for one, they're almost right next to every trash can. The environmental club helped with detailed signage for the recycling bins. There is a ribbon of text along the top of the garbage can or recycling bin stating what materials can be placed in the bins.

I had the opportunity to see one of the Environmental Club meetings first hand. They are a passionate group of students and it shows. Earth Day seems far off for many of us (April 22, 2011), but the Environmental Club is already busy planning for Earth Week here at Harper. As students who see the changes at Harper first hand, there are a few major habits that they see that they'd want to see change.

1. Put trash IN the trashcans, or appropriate recycling bins. Think before you toss your trash.
2. Do not smoke in smoke FREE areas.
3. If you choose to smoke on campus, please, be aware the ground is not your personal trash can for your cigarette butts.
4. Change the overall 'I don't care' attitude of some people on campus. (It may not be your house or home to take care of, but why should anyone else pick up your mess? Why should we need to have students picking up trash around campus? - We shouldn't need them to.)

Harper's carbon footprint is not yet known. However, "one of the first steps after you sign the climate initiative is that you have to do a carbon inventory, which is actually a very complicated proposition for a campus like this," said Professor Cashman. "That gets done in the first year after you sign the initiative. Our Physical Plant people are actually coordinating that effort right now." As soon as we know what we're putting into the environment, we can then look at how we, as a campus, can leave a lighter footprint.

As part of the Green Initiative, there needs to be an overall goal toward using different energy sources. In fact, 15% needs to change to alternative energy sources within the first year. Did you know Harper uses almost 20 million kilowatts a year? The 10-year strategic plan for Harper includes input from the Green Committee. Craig Stettner, Environmental Club Advisor and member of the Exterior Subcommittee, said "we're trying to get a lot of that stuff into the plan and a lot of it's at that stage." There are many different types of alternative energy sources such as solar, wind, geothermal, or off-campus solar panels.

According to Professor Cashman, Harper College has helped save over 10,000 water bottles from being thrown away. How? There is a handy little dispenser near the entrance to the bookstore where you can refill your water bottles. "The Physical Plant installed a filtered water dispenser over by the bookstore – so people can refill bottles there rather than just using the water fountain – and the good thing is that the water is filtered. Since the time that's been there (it was only installed during the summer) it has filled the equivalent of over 10,000 water bottles," said Professor Cashman. The station is next to the Liberal Arts office. Harper College's green ideas extend to more than just the current college classes. Anyone in Harper's district can participate in

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Student using the filtered water dispenser

gaining a certificate in sustainable living at Harper.

While obtaining the sustainable living certificate may not be marketable as a career on its own, everyone is going green, and it could be an advantage to any business you work for in the future. Anyone who is interested in business should take the time to earn the certificate. "We have taught Our Green World, which is a sustainable living Continuing Education certificate, as part of that landscaping with native plants since the beginning," said Professor Cashman. Recently Harper College has undertaken the same goal – using more native plants.

A lot of planning goes into helping Harper attain a greener standpoint. For example, a recent proposal was passed by one of the subcommittees of the Green Committee. Have you ever thought of how much energy and water it takes to keep Harper looking beautiful? The Exterior Subcommittee did. Stettner, who is on the Exterior Subcommittee said there will be "a lot more native plants [around campus]. They use significantly less water and energy to maintain, which will have an impact."

How many of you have cell phones, old cell phones, sitting around in your closet? Why not recycle them? You can recycle most things. Another of my professors here at Harper gave all her handouts on the back of other handouts. We print things, syllabi and exams, readings, and what do we do with them afterward? I save all my schoolwork and material, but Nancy Savard of the Physical Plant said that maybe we should all be moving toward more electronic filing. It'd take up less space and allow us to recycle our old materials.

Over the course of the 10-year Master Plan, the Green Committee is helping to influence future structure and progress here at Harper College. One goal would be ride sharing. It's not a relatively easy thing to get started, but could make a big impact on the environment. Though there are many changes our class won't see, the viability of ride-sharing could be here before we realize. Professor Cashman said, "one of the things the Transportation Subcommittee is dealing with is the viability of ride-sharing programs. If we can put two, three, or four people in a car coming to campus instead of one, that could have a huge impact. Hopefully they'll be able to make some very practical recommendations on how that kind of a thing might work. I'd love to see a ride sharing program before the next fall semester starts."

If you want to go an even greener route, you could try biking. However, there are some limitations to keep in mind. For example, Stettner "rode [his] bike here once. It was awful. I live straight east of here. It was just awful." Without a lot of bike access, riding a bike to Harper is no easy task. In addition, there is the added concern of what to do with it once you arrive! While there are some bike racks to park your bike around campus, there aren't many. Then, of course, you must have a bike lock to make sure it'll be there upon leaving.



Riding a bicycle helps the environment.

If you're not interested in riding a bike to school (with the upcoming winter weather, I can't imagine that many of us are), you can always take the bus. I live eight miles from Harper, give or take, and if I took a bus it would take me an hour and forty minutes to arrive. In addition to taking an extra hour and twenty minutes to my normal route, I would also have to arrive a whopping hour and a half early. A later bus would drop me off right as class is supposed to start. Now, if I wasn't so concerned about walking across the skating rink we call a parking lot, I might be able to rush into class. If you're like me, however, you don't like strolling into class late, disrupting everyone – professors included.

At one point students at Harper had to worry about the PACE bus cutting service
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to Harper College. Luckily that service didn't end. However, students in need of transportation might find the PACE schedule hard to work around. According to the PACE bus schedule for the 696 bus, which runs to Harper, there is no service available on the weekends at all. Not only that but the earliest bus doesn't arrive at Harper until 8:39 in the morning, and the latest bus leaving Harper is at 7:06. Transportation to Harper is not the only problem facing Harper College or its students.

The Environmental Club on campus has nearly forty members now. According to Craig Stettner, current advisor for the Environmental Club, the biggest impact the members have is "that they're setting good examples. Some of them are leaders, just using good practices." Should you be unplugging the phone when it doesn't need to charge? Should you put the right material into the right trash bin at Harper? They're small things that make a large impact. Over time we need to change our habits and they're all ingrained in each of us differently.

"We really enjoy habitat restoration. It's a big problem that you don't hear a lot in the news. That's the number one environmental problem in the world is habitat restoration," said Stettner. If you've never heard about it before, don't worry - neither have I. Is that part of the problem? Absolutely. Without awareness we can't fix what we've done to our environment. Habitat restoration takes the environment to a previous healthy state. For example, the Environmental Club helped clean a stream on the east side of campus. They "had a big stream clean. They pulled out like nine tires, a door. Who knows how long that stuff was there," said Stettner.

There are still more changes coming for Harper in the near future. It may not be for your class, or even the next one, but they're coming. Harper College has made significant strides already. The college is environmentally conscious. Now we just need to motivate the rest of the faculty and students to do their part. Nancy Savard, who works in the Physical Plant, gave some shocking insight as to how recycling has become more prominent here at Harper.

In 2009, Harper recycled "261,400 pounds (130.70 tons) of office paper, mixed use (books, magazines and other printed material), corrugated cardboard and shredded sensitive documents," said Nancy Savard. The breakdown really puts it into perspective. What does it mean when we talk about one ton of paper? Or one ton of cardboard? One ton of paper saves the equivalent of 17 trees, 380 gallons of oil, 7,000 gallons of water, and three cubic yards of landfill. Harper recycled over 130 tons last year and has only been making more significant strides in 2010.

What do I think should be done? I think we all just need to have awareness of everything we do. It takes energy to do most of the things we do today. It takes fuel to drive down the block to the grocery store. Those water bottles may be out of sight and out of mind, but the high use of plastics is dangerous to our planet. What would faculty and staff like to see done? Stettner, Savard, and Cashman all agree that everyone has to cooperate so that we can all make a difference on campus.

"A phrase in environmental circles is 'think global, act local.' We've got classes where there are recycle bins right outside the door and I'm always picking stuff outside of the garbage 10 feet outside of the door. So the little things," have a big impact, said Stettner. College students and even faculty members all need to work together to help Harper get to their ideal carbon footprint. We all need to work together to realize that, while Harper is becoming 'greener,' the better habits we have here at Harper, the better habits we will have at home. ♦



What's your carbon footprint? Three minutes and you can find out!
Go to : www.earthlab.com/createprofile/reg.aspx

A Complaint About Complainers

by Eduardo Aquije

Plenty of times I have heard many students complaining about how there is nothing to do at Harper. They think that a four-year institution will be much better and more exciting than a community college. I know this because I used to be one of them. I was completely wrong. I found so many things to do at Harper that I realized there was not enough time for all of them. The sad part is that many students never realize what they are missing.

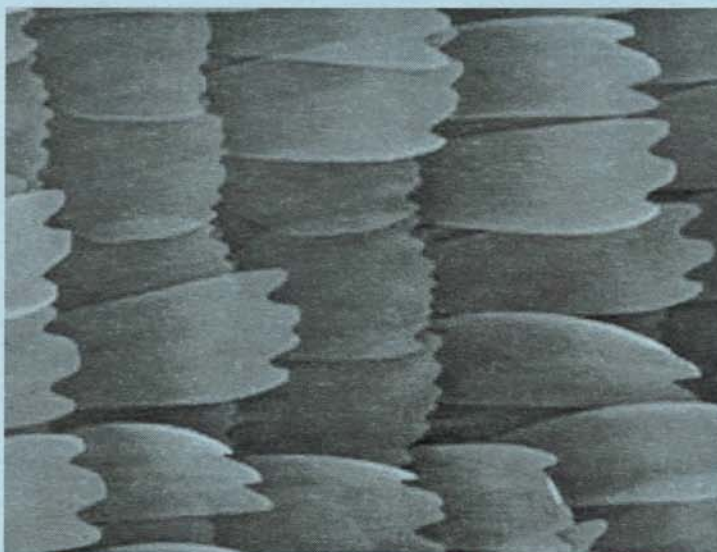
Michael Nejman, Director of Student Activities, describes this common behavior of Harper students. "Many times, students walk around with blinders on as they walk from their cars to their classes, and then back to their cars. They do not see the world around themselves. Then, there are the students who have 'peripheral' vision. They see the world around themselves, and they get involved. These are the students who are in clubs and organizations who strive to make Harper a better place." Many students have not tried to learn about the opportunities offered around campus.

Harper College is one of Illinois' top community colleges. This is not only because of the high quality of education that you get but also because of the different student services. On top of that, we also have a very good infrastructure that many colleges wish they could have.

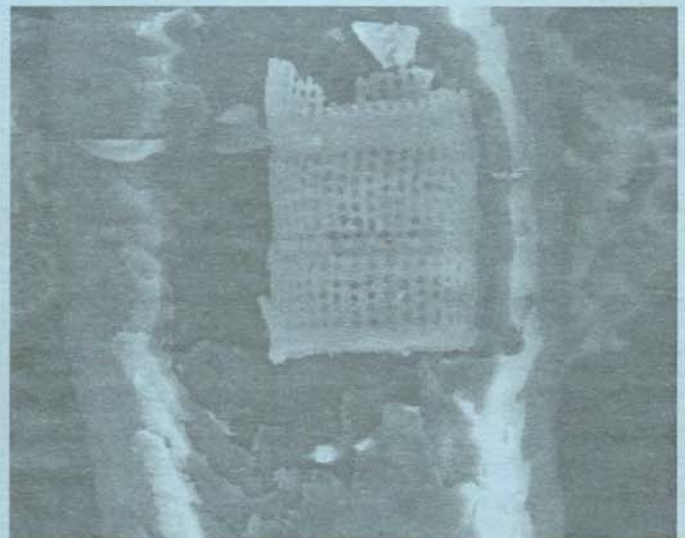
Academics

For example, did you know that we have a nano lab in the Y building? Harper is the only Illinois community college offering an approved nanotechnology program. Nano science is the study of manipulating material on a molecular scale. This means that people in this field usually work with objects in sizes ranging from 1 to 100 billionths of a meter. The job market for this specialty is expected to significantly grow in the next couple of years, and it is expected to reach the same size as the microelectronics industry today. "We have a number of interesting instruments to allow study of materials at a scale smaller than possible with an optical microscope," Professor of Nano Technology Samuel Levenson said. The nano lab at Harper contains many of the instruments that students would use in a real job environment.

Looking at different things on a very small scale may not sound that interesting, but Professor Levenson reminded me, "Sometimes a picture is worth a thousand words." It is fascinating to see things at that magnification. Many of the pictures are on the Nano Science Department web page.



Butterfly wing at 800x magnification



Pool Filter Material (Fossilized diatoms) shown on human hair for scale at 800x magnification

Technological Infrastructure

As I mentioned before, we do not only have a high quality of classes, but we also have a very good technological infrastructure. We have more than 1,700 computers that provide access to the Internet. Many of these computers contain discipline-specific software, such as Photoshop or AutoCAD, which any student can use. Harper also has smart classrooms, which provide professors with a variety of tools to enhance teaching. For example, in many rooms professors are able to use a digital pen to write notes on slide shows that are presented to the class. In addition, Harper also offers free Wi-Fi throughout campus. Even though Wi-Fi reception may not be excellent everywhere, the IT department is constantly working on improving connection. Also, the IT department and the Marketing department are continuously trying to improve the Harper College website and the MyHarper Portal. For example, this semester they were able change the password for Blackboard and for MyHarper so that they would be the same.

Student Involvement

Harper College has over 45 clubs and organizations to join. All of these organizations and clubs offer students different ways to get involved in campus. Michael Nejman believes that “students who get involved tend to have a much richer college experience. By joining clubs or attending the leadership sessions, they will meet new friends with similar interests and passions, as well as develop their leadership and people skills.”

If you do not know which organization to join, there are ways to find out which one will be the best fit for you. Interested students can check the Harper website and go the Student Activities tab. These clubs and organizations are also listed in the MyHarper Portal under the My Campus tab. Students are also more than welcome to go to the Student Activities Office on the third floor of Building A. There, they can be helped to find out which organization would be a better fit for them. For instance, students interested in being a journalist can join The Harbinger. Students can also learn how to produce special events through Campus Activities Board, or if they would like to be the voice of the student body they might join Student Senate.

All of these ways to get involved in campus are great ways to meet new friends with similar interests. In addition, they can greatly enhance a resume. Also, all of the involvement in campus “leaves a legacy; some proof that they left the College a little better than when they first came to it,” said Michael Nejman.



Students learn about different clubs during Harper's Hullabaloo 2010.

Student Services

Many of you may be thinking that this is all great, but with all of these things to do, your grades may drop a little bit. Do not fear; there is one simple thing to do. The Tutoring Center can help with your classes. The main goal of the Tutoring Center is to reinforce the material learned in class to promote student success. They offer free tutoring to Harper Students in a variety of subjects such as accounting, chemistry, CIS, foreign language, math, physics, and others. There are different specific services they provide depending on your needs. There are test reviews, one-on-one tutoring, study guides, and other options available. It is important to note that for some subjects, an appointment has to be made. The Tutoring Center is above the Library in Room F315. If you are struggling in your classes, make sure you visit them. They will be able to help.

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So you have joined an organization and you are doing great in your classes. Maybe now it is time you look for an internship or start putting all of your experience on a resume. Then you should stop by the Career Center.

At the Career Center, students have the opportunity to receive career counseling, plan a schedule for each semester, and access databases of jobs. Kathleen Canfield, director of the Career Center, explained that "students can take advantage of the career counseling and resources to make the most of their time here at Harper and to plan for their future, whether to transfer to a four-year school or for a job." Students can also get some help with their resumes, their interviewing skills, and their job search tactics.

One more reason to go to the Career Center is for the internships. "Internships give you real world experience, let you 'try-on' a career and look great on your resume," said Canfield. There are many internships available in different areas of study. Students can find more information about the Career Center at the Harper College website.

As you can see, there is plenty to do at Harper. The reality is that students are blinded by their assumptions. In fact, Harper offers a great variety of opportunities to succeed. I hope that at least some students realize that Harper College is a great place for them to start their careers and that they take advantage of the different services that Harper has to offer. ♦



Many students get help at the Tutoring Center every day.

The Master Plan

by Eduardo Aquije

It is common for a Harper student to come to campus twenty minutes before class just to find a parking spot. On most days, you will need to drive around campus a few times. And when you find one, you might just be on the opposite side of campus from your class. It is true that it only takes about ten minutes from any spot to get to any classroom, but if you ask me, I would prefer not to walk from the D parking lot to Avante. Especially in February while there is a blizzard outside.

Also, many Harper Students frequently refer to the D building as the 'dark side of campus.' This is mostly because of the dim hallways and the lack of seating around the hallways. Thus, it is understandable why there are always many more students in Avante building.

All of these concerns are taken into consideration in the structural planning of the college. In the next decade, Harper will go through many changes. The Master Plan aims to change the way Harper looks and functions.

Most of us will not see the changes while we are in school, but we should all be involved in what we expect Harper to become. Whether it is better parking or the modernization of certain buildings, it is important for students to voice their opinions.

The Master Plan is going to prepare the campus for enrollment growth in the coming years. It will address certain problems such as parking capacity, safety, infrastructure, and exterior and interior circulation.

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There are also the possibilities of surface parking structures and the addition of new buildings.

However, the renovation of Harper College will not be cheap. It is estimated that, if everything planned gets done, the cost will be about \$425 million. It is true that many people think that we are not in the best of financial situations to spend this money, but Harper is managing these costs efficiently.

According to Harper College President Dr. Ender, Harper was able to sell many bonds that they owned last year. This provided the college with about \$151 million. In addition to that, the college had set apart a small piece of their budget to finance the Master Plan. These two sources of income provide Harper College with about \$161 million to pay for the Master Plan. But the total cost is \$425 million. What about the \$264 million left to pay? Well, the State has compromised to finance many of the new buildings. This will noticeably reduce the costs of the Master Plan.

It is important to note that the cost will be \$425 million only if everything is done. But because of the economic crisis, getting everything done is very unlikely. The Master Plan consists of seven phases, which are based on available funds and time.

The first phase, which is the most important priority for the college, will be the new building that will contain the Student Center and Enrollment Services. This will be useful because all of these offices will be located in one building. This is one of the buildings that the State has agreed to pay for.

The second phase of the Master Plan is the renovation of G and H buildings. Many of you have noticed that renewal in H building has already started. The restoration of these buildings will cost about \$17 million.

The third phase will be the renovation of the library and of D building. Also, it is possible that D building will have a new addition. The math department is a top priority when deciding the changes that will be made.

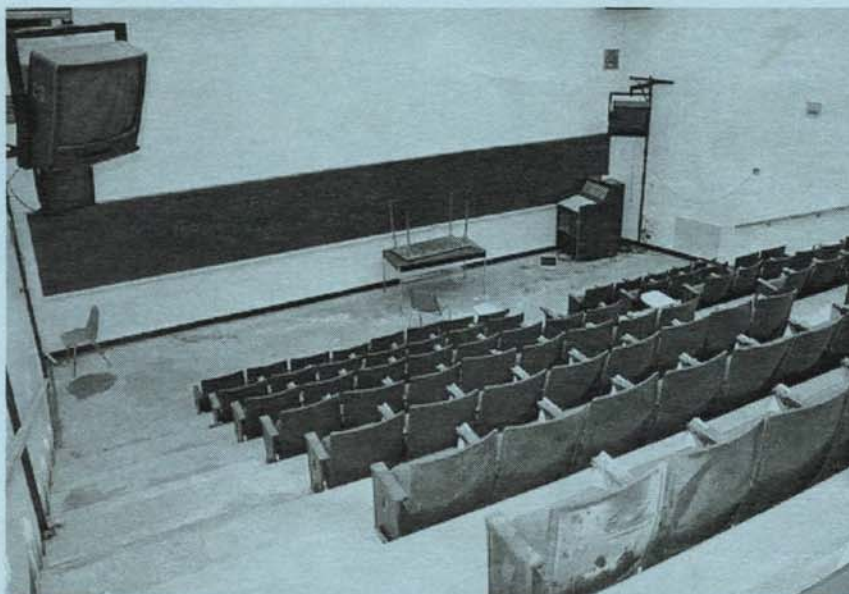
Even though many people think that the math department was angered and felt left out when Avante was built and they had to stay in D, this is not true. I had the opportunity to ask a co-chair of the department, Professor Sunil Koswatta, about this situation. "I do not think that the math department felt 'left out' by not having room for the math department in Avante. The math department was never involved in planning of Avante. However, I do not deny what you have heard. These murmurs are mostly generated by people outside of the math department."

However, this time is different. The ideas of the math department are being seriously considered by the Master Plan committee. For example, the math department would like to see full-time faculty offices located close to each other. Professor Koswatta explained that he would like to see "a large study area surrounded by full-time and adjunct faculty offices so that students can study in this area and have quick access to ANY faculty member." Other ideas include an open computer lab, white boards for students and faculty to work on, a small math department library, and a little cafeteria.

Some other issues that the math department faces are that some rooms are not soundproof, and that the Mathematical Science division office is in Y building while more than half of the Mathematical Sciences faculty is in the D building. The Master Plan will most likely be able to solve more of these issues.

Dr. Ender mentioned, "These phases can easily be achieved if the State comes up with the funding." But experience has shown us that the State, at least at this point in time, is not the most reliable source of funding. Still, even if the State does not come up with all of the funding, Harper College will most likely accomplish

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This classroom on building H Suffered water damage. The building is currently being renovated.

these changes. On the other hand, if the State gives us some of the money, Harper College will be able to implement Phase Four.

Phase Four consist of the renovation of M building. Also, depending on how much money we receive, there is a slim chance that M building will get an addition, and there is a chance that the locker rooms in the fitness center will be renovated.

In the words of Dr. Ender, the rest of the phases are considered “fantasy land.” These are improbable to happen due to the current economic situation. However, there are some other possible new buildings that were not mentioned in the phases. These other buildings are a tech building, which will contain IT and related offices, and a hospitality building. These two buildings will be financed by the State.

What about the parking? Well, the expansion of parking is reality. It would not be possible to create more buildings, which will substantially increase enrollment, without more parking, because these new buildings will reduce parking spaces. The three new parking structures will most likely be located on the north side of campus around buildings M, H, and parking lot 12 or also possibly around parking lots 5 and 6.

These locations are the most appropriate for parking spaces because of the space available around these areas. These three new parking structures will reduce the time that it takes for students to find a spot. I was a little disappointed because these new parking spaces are a little bit too far from some buildings, but I was happy to know that there is a big chance that some of these parking structures will be connected to the buildings. This means that you will no longer need to walk outside in the freezing rain or snow to get to your class.

While it is true that these changes will take effect over the next decade, it is comforting to know that the issues students face around campus are being heard and addressed. The renovation of certain buildings is much needed and the new parking spaces would be a very welcome addition. Overall, I believe in the next ten years the Harper campus will change for the better. ♦

Available At Harper

by Megan Saltenberger

Imagine walking into a hospital, and you're in the pediatric unit. A young boy, Henry, is sitting there. He's sick. He's trying his best to tell you what's wrong. He's seizing now. How can a nursing program prepare a student for something like this?

Believe it or not, they can simulate this experience and more right here at the Harper campus.

“Code blue!” It's blasted over the intercom system and the sound vibrates through the hallway of the hospital. A blue light is lit up above the patient's room. Nurses rush to the room. This is not the time to screw up. They are being video taped. The patient is in bad shape. He can barely speak to let the nurses know what's happening. It's just a normal day at the simulation hospital here at Harper College. Nursing students get the opportunity to work in situations before they have to face it alone. A teacher stands behind the glass and can even talk through the patient.

“This is Henry. One of our pediatric simulators. Henry has special needs. Before [the nursing students] go to Children's Memorial Shriners, they're going to learn to care for all his special needs,” said Barbara Gawron, who has been in the Nursing Department since before the state-of-the-art hospital area was created. Having had the opportunity to see the simulators first hand was a once-in-a-lifetime experience for me. “This is our newest mannequin – completely wireless, actually seizes, sweats, bleeds out, turns blue – monitor shows his vital signs – he also urinates – and I talk through him,” commented Gawron. One of the other simulators can actually give birth.

The instrumentation allows students to gain a first-hand experience where they're able to make mistakes. At opening day for the new Nursing Department, according to Gawron, the president of Northwest Community Hospital said, that “[Harper College Nursing] students really do a good job. They're very safe practitioners and conscientious with their patients.” As the first community college with a simulation hospital, Harper spared no details. There are different departments in the mock hospital, including a delivery area, hospice area, and even a



supply room.

The technology makes it look and feel like you're in an actual hospital. On occasion the department has seniors citizens come in to replace the simulators. The mannequins are a great asset to students but certain things need to be done with a real person, such as psychiatric evaluations. According to Gawron, who is often found in the Nursing Lab, "the equipment is what different hospitals in the area actually use."

The Nursing Department isn't the only one that's state-of-the-art here at Harper College. Chances are all of us have taken at least one biology course here at

Harper, be it for a gen ed requirement or for interest. Sandy Kreiling, who is in her ninth year as Department Chair, gave me a tour around the Biology Department. Every classroom contains a microscope, but there is much more going on if you get the chance to see it! If you've ever been in Z building, which is part of Avante, you might have noticed some plants on the second floor. We've all seen it walking through the hallways. I got to see it first hand.

"Off the botany lab is a solarium that most students see from the outside. It's like a greenhouse. It's not a true greenhouse but like a sunroom," said Professor Kreiling. However, it's an improvement from the sunless room they had before. Not only do students work on projects that are contained in the sunroom but they also work on the natural area on campus. We have "the prairie on the east side of campus that we've been restoring since the mid '80's. We've been trying to restore it to be like a native Illinois prairie," indicated Professor Kreiling.

If you're interested in learning about animals or how humans operate, why not take a biology class? The animals may not be "warm and fuzzy," but there is a lot to learn. In zoology class, students have the opportunity to dissect an actual shark. Why a real animal? "It's important for them to meet live sea animals in person and see what they're all about," said Professor Kreiling, who also teaches zoology. Animals aren't the only thing available for students to get to see first hand. Harper College also has a cadaver lab.

The students do not get to dissect the cadavers themselves. Instead, a trained technician does and then the students are able to see and feel what it's all about. Instead of feeling idealized models, the students are able to touch the cadavers to feel how it all works. There are many models available to students in anatomy class, but some learning is just best done first hand. The Biology Department didn't skimp on the models either. There is one for every four students, which allows all the students ample time with what they need to study.

Have you ever been interested in the techniques used in forensics? Ever been curious to know if what you see on CSI is even close to what they do in real life? New this year to the Biology Department is a PCR instrument. "If you have a very tiny sample of DNA, from a hair or something, you can replicate it and have a lot of it so you have a bigger sample so you can analyze it better," said Professor Kreiling. What else does Harper have?

I had the opportunity to walk through the microbiology lab, where students were working hard to identify a type of bacteria. Since "bacteria has to grow at certain temperatures, each class has their own incubator that's set at a certain temperature so they can grow their own bacteria," said Professor Kreiling. If you ever walk into a room to see a somewhat angry looking machine that seems to hiss just as you walk in, you don't need to worry; it's not like the furnace in a *Home Alone* movie. It's just the autoclave where students dispose of their bacteria. Since bacteria is expensive, all the bacteria is grown in-house.

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A typical lab students encounter in physiology is the respiration lab. Students wrap a strap around their chests "and when you breathe it records your movement and they record it on the computer," said Professor Kreiling. Despite all the advances, would the Biology Chair like to see new instrumentation? Mostly the wish list contains items that they have that just need replacing. Many of students use the instrumentation available in the Biology Department and things wear out. What about the Department of Chemistry?

Chemistry students may have more at their fingertips than they're aware of. Department chair Julie Ellefson believes the department has state-of-the-art instrumentation available to students. While the wish list for the Department of Chemistry has at least one item not currently in the lab, it's in a similar position to the Biology Department. The important thing on the wish list is to replace what they already have.

We have a flame A.A. or Atomic Absorption Spectroscopy instrument. Flame A.A. is used primarily to quantify atoms. Another resource is the FT NMR (Fourier-Transform Nuclear Magnetic Resonance) Spectroscopy instrument, which uses the same type of technology used in an MRI. Students at Harper get a chance to work with the instrument. I recently had a chance to work with it and had the opportunity to hear the cost of such a machine(\$140,000) from Professor Andy Kidwell, another chemistry professor. This instrument was obtained through a federally funded National Science Foundation grant.

It doesn't stop there. We also have two GC-MS (gas chromatography mass spectrometry) instruments as well as one that is just a GC instrument. The materials are separated into pure chemical substances and then the chemicals are identified and their quantities are known. In a previous chemistry class that I took here at Harper, we did an experiment involving liquid chromatography. We took four black pens and did a simple experiment. We placed dots toward the bottom of the paper, placed the paper in a beaker with a small quantity of water and we watched as the colors were separated out of the black. Even though the ink from all four was black, there were several different colors composing each black. Each color scheme was unique to the pen used. I enjoyed the experiment so much that I still have my results.

We have "two HPLC (high pressure liquid chromatography)," Ellefson pointed out during the tour. We also have "two FTIR infrared spectrometers" and one that is "IM chromatography," said Ellefson. The FTIR (Fourier Transform Infrared) Spectroscopy instrument allows people to learn about the identity of unknown materials. We also have a UV visible spectrometer. The UV visible spectrometer allows us to see what wavelengths are absorbed by different chemicals. Since these wavelengths are specific to each chemical, we can identify a chemical based on what wavelengths are absorbed (what colors are visible).

So what is the instrument that the Department of Chemistry is currently vying for? A microwave. Not your ordinary microwave but one that "allows chemical reactions to be carried out in a fraction of the time necessary under standard reactor conditions and for more environmentally friendly experiments," said Professor Ellefson. The department may seek out a grant to obtain the microwave reactor. Other than obtaining this instrument, like the Biology Department, the Department of Chemistry wants to replace worn items. The instruments in all departments endure substantial use by all of the students here at Harper.

If you're like me, you likely didn't know about all the advanced technology and instrumentation available on campus. Maybe you'll decide to take an extra class because something here piqued your interest. Here at Harper, we have the opportunity to work closely with great faculty and impressive technology, which will help us further in life. We have simulated puke, sharks, and gas chromatography instruments. Unless you explore, you will never learn what the different departments have to offer. So, why not explore what's available at Harper? ♦