Harvard University Extension School

Towards Sustainable Business Education:
Analysis & Recommendations

ENVR-101
Department of Environmental Management

BY
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St. Louis, MO
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“Everybody, soon or late, sits down to a banquet of consequences.”
–Robert Louis Stevenson

This paper is written for my sons and their descendants, may it be a seed whose ideas propagate as successfully as Kudzu and the Asian Carp.
Introduction

As a recent graduate of the Olin Business School’s Executive MBA program, I can attest to the quality of the education as well as the impressive manner in which it is run. The facilities are outstanding, professors are top-notch and the administrative staff runs a well-oiled machine, while treating you like family. The Wall Street Journal recently gave credence to my high opinion by ranking the school second in its 2010 world rankings of EMBA programs. (Appendix A) Given its lofty perch, most would suggest a kaizen 

\(^1\) approach to guiding the school forward. I believe this would be a momentous error. Recent events have signaled the need for a change in direction from current business practices. Business schools have an obligation to help lead that change. I would like to see my school reach for something far more ambitious and will advance my plan in the recommendations section of this paper.

Clayton Christensen, a Harvard Business School professor, is renowned for his theory of disruptive innovation, “a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves ‘up market’, eventually displacing established competitors.” (Christensen n.d.) Christensen’s theory advances the idea that leading businesses often fall prey to competition from seemingly marginal players who attack undefended, low-end turf and then advance rapidly. (Appendix B) A classic example is that of hard disk drives in the 1980’s. While companies clamored for ever greater disk capacity, a competitor who developed physically smaller disks, which initially had smaller storage capacity than the market standard larger disks, was seen as an irrelevant player in the market.

\(^1\) a philosophy of continuous improvement of working practices that underlies total quality management and just-in-time business techniques. (http://dictionary.reference.com/browse/kaizen)
The upstart worked to improve their technology, quickly increasing storage space to a level comparable to the larger ones. At the same time, they worked to find applications for their products that other disk manufacturers were incapable of fulfilling. The entrant, initially dismissed as irrelevant, soon became the market leader. I see a similar story playing out in the business school arena. Most programs continue to pray at the altar of short-term profits, advocating a linear, single-use view of environmental resources, but a select few are striking a new path. These schools are looking forward by integrating sustainability in their curriculum. It’s unlikely that this shift will lead to the obsolescence of programs that are not yet on board, but those who lead will have a distinct advantage over those who follow. They will have a hand in recreating business, while becoming the programs into which students compete for entrance.

At a recent speaking engagement, Gary Hirshberg, CE-Yo of Stonyfield Farms, stated that “we’ve been running an experiment for the last fifty to sixty years and the results are in.” (Hirshberg 2010) Mr. Hirshberg was referring specifically to our food systems, but his comment is broadly applicable. The earths’ atmosphere has experienced a steady rise in CO₂ levels since the 1960’s as demonstrated by the Keeling Curve. (Appendix C) Climate change remains a political football in spite of the fact that ninety-eight percent of publishing climate scientists agree that man’s exploits are undoubtedly negatively impacting our atmosphere. (Cook 2010) Fortunately, a burgeoning minority of business schools are heading down a new path. Students and businesses are demanding something new. As evidence of this demand, sixty-two companies have signed on to support research being done by the Sustainability Consortium. This university led think tank, spawned by a grant from Wal-Mart in early 2009, “drives scientific research and the development of standards and IT tools, through a collaborative process, to enhance the ability to understand and address the environmental, social, and
economic implications of products.” (Sustainability Consortium n.d.) The consortium has secured funding of over thirty million dollars from its corporate sponsors. Why would these firms pony up for access to information that might cast a negative light on their products and operations? The optimist in me would like to believe that they are making a values-based decision to reduce their environmental impact, but I’ve worked in corporations long enough to know that environmental and societal impacts tend to take a back seat to profits. My pessimistic side worries about the potential for green-washing and that some may be engaging to try to shape efforts in a way that allows firms to hide their warts. The pragmatic view seems the most reasonable as it sees this as the move of enlightened firms who realize that the landscape is changing and that they can get ahead of the game by getting on board now. Those who wait for the eventual release of rating systems will find themselves unable to compete with the ones who have worked to remake themselves along the way.

For evidence of student’s demand for sustainability, the Olin Business School need only look at the school’s spike in involvement at the 2010 Net Impact conference. The conference, the premier event for sustainability and corporate social responsibility focused business school students, hosted thirty of Olin’s current students. In 2008, the final year of my MBA program, there were only a handful of attendees. With political leaders unwilling, or incapable, of delivering meaningful regulation, business leaders need to step into the regulatory void. Sound business decisions which take into account externalities, while seeking better solutions, need to start occurring immediately. Business schools need to lay the right foundation so that future leaders will have the tools and understanding necessary to lead the way. This paper will analyze a handful of trailblazing business schools that have integrated sustainability in their curricula and
then offer recommendations based on the findings of that research and knowledge gained from additional sources.

**Methodology**

There are a number of publications producing information that can help sort out the leaders in sustainability-focused business education. Of these, three stand out as credible sources that I hold in high regard. I’ll discuss each of these sources separately by sharing their stated missions, the purpose for their publications and my goal in utilizing each resource. A fourth, Beyond Grey Pinstripe’s Top Ten lists, (Appendix D) recycles data from their surveys and ranks programs along the following lines: U.S. Programs, International Programs, Coursework, Research and Small Schools.

**Resources:**

1. **The Aspen Institute – Beyond Grey Pinstripes (BGP) Global 100 Rankings**

   The Aspen Institute claims the dual mission of fostering “values-based leadership, encouraging individuals to reflect on the ideals and ideas that define a good society,” as well as providing “a neutral and balanced venue for discussing and acting on critical issues.” The BGP rankings seemed the appropriate source for determining which programs are leading the way in sustainability-focused education. The institute has a strong reputation, having provided value to society since its inception in 1950, and the rankings are clearly the most thorough available, as evidenced by the publication’s methodology. (Aspen Institute 2010) This paper will review the elements and approach of the top six programs in the BGP Global 100 rankings. (Appendix E)
2. The Association for the Advancement of Sustainability in Higher Education (AASHE) - Curriculum Tracking

AASHE works “to empower higher education to lead the sustainability transformation.” They work to accomplish this “by providing resources, professional development, and a network of support to enable institutions of higher education to model and advance sustainability in everything they do, from governance and operations to education and research. These resources will be used to supplement the curriculum information provided by the Aspen Institute. (Appendix F)


Net Impact is a “network of more than 20,000 new generation leaders committed to using the power of business to improve the world.” (Net Impact n.d.) The organization accomplishes this by bringing together “MBAs, graduate students, a select group of undergraduate students, and young professionals together to network, learn and take action on socially-responsible business issues.” (Net Impact n.d.) The organization also “educates, equips and inspires members to use their business skills for social impact.” (Net Impact n.d.) Net Impact’s “Business as Unusual” guide “gives the inside scoop on what business programs are doing to prepare students for careers that make a positive impact on the world.” (Net Impact 2010) I’ll use the results of the student surveys to support my assertions as to which elements deserve emulation. (Appendix G)

**Findings**

The top five programs (in order) in the Beyond Grey Pinstripes Global 100 Rankings:

1. **York University (Schulich)**
York University took the top honors by leading the way in both the coursework and research categories. The program offers an MBA specialization in Business & Sustainability as well as a graduate certificate in Business and the Environment. All students are required to take “Skills for Leadership and Governance” a class "designed to prepare students for the new economy and will emphasize the social, environmental and ethical impacts of management decisions.”

And at least sixty-four of the 162 courses offered touch on sustainability issues. The full descriptions of each of the school’s sustainability related courses are available in this document’s appendix to demonstrate the depth and breadth of their offerings. (Appendix H) In 2000 the Schulich School created the Sustainable Enterprise Academy, which is “dedicated to providing management training in sustainability issues for senior level executives.” (Aspen Institute 2010)

In addition to this, the school is also home to a number of sustainability-focused departments, including “Transparency International Canada, Inc., "a business corruption watchdog organization, the York Centre for Applied Sustainability, and the Centre for Practical Ethics.” (Aspen Institute 2010)
Unfortunately, York’s Net Impact members did not respond in sufficient numbers to provide meaningful data, but the Aspen Institute’s lofty placement should be enough to warrant serious attention for those looking to emulate today’s standout programs.

2. University of Michigan (Ross)

<table>
<thead>
<tr>
<th>BGP Global 100</th>
<th>BGP Top 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant Courses</td>
<td>Student Exposure</td>
</tr>
<tr>
<td>8</td>
<td>23</td>
</tr>
</tbody>
</table>

Program Analysis

I recently had the opportunity to visit the University of Michigan for the 2010 Net Impact Conference. The Ross school hosted the event and did so in impressive fashion.

“The Frederick and Barbara Erb Institute, a partnership between Ross and the School of Natural Resources and Environment, offers the world’s leading dual degree program (MBA/MS) focused on global sustainable enterprise. The Nonprofit and Public Management Center, a partnership with the schools of Public Policy and Social Work, is dedicated to providing managerial expertise to the dynamic intersection among public, private and nonprofit institutions. The Ross School shares many resources with the William Davidson Institute, which has a mission to improve social welfare and facilitate economic transition in developing countries.”
Having met and observed several students from the Ross school, as well as having previously assisted with one of the program’s research projects, I can say without question that the school produces engaged graduates who are primed for careers as sustainability professionals.

**Net Impact Survey**

<table>
<thead>
<tr>
<th>School</th>
<th>Chapter Status</th>
<th>Faculty Emphasis</th>
<th>Course Offerings</th>
<th>School is committed to incl. soc. &amp; enviro themes in curriculum</th>
<th>School is committed to incl. soc. &amp; enviro themes in activities</th>
<th>Net Impact members are prepared for socially responsible leadership</th>
<th>All students are prepared for socially responsible leadership</th>
</tr>
</thead>
<tbody>
<tr>
<td>U. of Michigan (Ross)</td>
<td>Gold</td>
<td>64%</td>
<td>79%</td>
<td>73%</td>
<td>89%</td>
<td>70%</td>
<td>under 10%</td>
</tr>
</tbody>
</table>

The survey results show that Ross students are both happy with the school’s efforts to integrate sustainability in their education. It also shows that as Net Impact members, they feel that they are far more likely to be prepared for socially responsible leadership. In fact, they believe that members are seven times more likely to be prepared for this work than non-Net Impact members. That seems a clear vote for enhancing and expanding ties between a program and their respective chapter.

3. Yale School of Management

<table>
<thead>
<tr>
<th>Relevant Courses</th>
<th>Student Exposure</th>
<th>For-Profit Impact</th>
<th>Faculty Research</th>
<th>US</th>
<th>Int’l</th>
<th>Courses</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>23</td>
<td>1</td>
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<td>2</td>
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<td>1</td>
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</table>

**Program Analysis**

Yale’s program is another deserving of adulation, needing only to improve its position in the area of student exposure to move into the top two overall. The program claims to have been founded
on principals which separate it from the pack, promoting itself with the motto, “Educat
leaders for Business and Society.” Dean Sharon Oster states, “From our founding more than 30
years ago, we have promoted the radical idea — not so radical anymore — that good
management is essential in every sector, private, nonprofit, or public; and that good management
can and should promote the greater good.” (Sharon M. Oster n.d.) This claim is backed by the
fact that three of the five academic centers in the school focus on sustainability related issues:
The Millstein Center for Corporate Governance and Performance, the Program on Social
Enterprise, and the Center for Business and the Environment.

Net Impact Survey

<table>
<thead>
<tr>
<th>School</th>
<th>Chapter Status</th>
<th>% Net Impact Members</th>
<th>% “very active” Members</th>
<th>% “somewhat active” Members</th>
<th>Faculty Emphasis</th>
<th>Course Offerings</th>
<th>School is committed to incl. soc. &amp; enviro themes in curriculum</th>
<th>School is committed to incl. soc. &amp; enviro themes in activities</th>
<th>Net Impact members are prepared for socially responsible leadership</th>
<th>All students are prepared for socially responsible leadership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yale</td>
<td>Gold</td>
<td>47%</td>
<td>50%</td>
<td>25%</td>
<td>89%</td>
<td>86%</td>
<td>97%</td>
<td>84%</td>
<td>67%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Yale nearly matches the University of Michigan in its ability to please sustainability-focused
business school students. Both of these schools deserve a close look by anyone looking to learn
from the leading sustainability-focused business schools the US has to offer.

4. Stanford GSB

<table>
<thead>
<tr>
<th>BGP Global 100</th>
<th>BGP Top 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant Courses</td>
<td>Student Exposure</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
</tr>
</tbody>
</table>
Program Analysis

Stanford’s business school has unmatched access to leading firms. This access offers opportunities for their students to make significant impact in the for-profit sector. Location is a big factor in the relationships they’ve developed, but their efforts to bring design thinking into the business school have certainly paid large dividends for them. Grabbing the reigns of the sustainability movement should provide similar gains for a forward thinking school.

Net Impact Survey

<table>
<thead>
<tr>
<th>School</th>
<th>% Net Impact Members</th>
<th>% &quot;Very active&quot; Members</th>
<th>% &quot;Somewhat active&quot; Members</th>
<th>Faculty Emphasis</th>
<th>Course Offerings</th>
<th>School is committed to incl. soc. &amp; enviro themes in curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stanford GSB</td>
<td>25%</td>
<td>40%</td>
<td>54%</td>
<td>46%</td>
<td>50%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Stanford’s middle of the road marks seem to suggest an opportunity for other schools to outpace them, but this may just be a reflection of high expectations from its students. How else could the program ranked second in coursework by the Aspen Institute satisfy the wants of only have of its students? The alternative would suggest that even the elite sustainability programs have a long way to go. This is a question which warrants further research.

5. Notre Dame (Mendoza)

<table>
<thead>
<tr>
<th>Relevant Courses</th>
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<th>BGP Top 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Exposure</td>
<td>For-Profit Impact</td>
<td>Faculty Research</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>14</td>
</tr>
</tbody>
</table>
Program Analysis

The Mendoza school gets high marks for offering three unique programs. The first, the ESTEEM (Engineering, Science, and Technology Entrepreneurship Excellence Master’s) Program offers students an interdisciplinary education which is jointly offered by the school’s Colleges of Science and College of Engineering, alongside the School of Business. The school also offers a joint five-year MBA Science program, as well as a joint five-year MBA engineering program. Both of these degrees offer an undergraduate degree to go with the MBA. While these joint degrees may offer exposure to the topics of an MBA program, I worry that it would not be as rigorous as a free standing one and that the nuances of management may be somewhat lost on undergraduate students. It would be interesting to see a similar joint degree program of this type with science program also being at the Masters level.

Any discussion of the Mendoza school’s impact must reference their lack of a PhD program. This is a highly unsustainable practice. The school does not train any PhD’s, so all of their PhD-level professors are hired from other programs. If enough schools followed their lead, our educational system would be in a sorry state within a generation. This is not something I would recommend emulating for a program that is looking to move to a leadership position on sustainability.

Net Impact Survey

<table>
<thead>
<tr>
<th>School</th>
<th>% Net Impact Members</th>
<th>% &quot;very active&quot;</th>
<th>% &quot;somewhat active&quot;</th>
<th>Faculty Emphasis</th>
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<th>School is committed to incl. soc. &amp; enviro themes in activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notre Dame</td>
<td>18%</td>
<td>30%</td>
<td>60%</td>
<td>77%</td>
<td>93%</td>
<td>81%</td>
<td>90%</td>
</tr>
</tbody>
</table>

Notre Dame fared well in the Net Impact survey. Students are happy with both faculty emphasis and course offerings on sustainability. Strangely, most of the same students did not feel that they
were being well prepared for socially responsible leadership. These data points appear to contradict each other, which may be due to a small sample size or a data collection error.

**Recommendations**

1. **Re-focus Curriculum**

   There are three thinking types, critical, divergent and systems, (Appendix J) that I believe are essential to sustainability-focused business education. Of these, critical thinking is the only one that is commonly taught in business schools today. The faculty members of the Olin Business School take great pride in their efforts to develop strong critical thinkers. Challenging assignments and engaging classroom discussions force students to build on this vital skill.

   Convergent thinking is an additional type that is ubiquitous in business education. This type teaches us to seek the correct or optimal answer to a give question. While this is important to topics like accounting where there is a “right” answer, there is a glaring need to teach students to think more creatively. Divergent thinking challenges you to seek possibilities rather than specific answers. This will be critical to re-thinking business for a sustainable future. This skill is taught in art and design schools and has been adopted by a handful of forward-looking business schools. The University of Toronto’s Rotman Business School and the Institute of Design at Stanford are examples of programs that work to develop divergent thinking skills in their students.

   The final piece of the puzzle, systems thinking, affords us the opportunity to look at the world through the lens of stocks and flows. This type of thinking breaks up systems into their various elements in order to see how they interact. Looking at the world through a
systems lens will force business leaders to account for the externalities they currently take for granted.

These three thinking types are necessities for the next era of business, if there is a collective desire to right the ship. If not, the train is barreling down the tracks and the bridge ahead is clearly out.

2. Develop a Sustainability Department within the Olin Business School

The obvious first move is to begin building competency in the area of sustainability. This will create a draw for both potential students and professors. It will also be a signal to the market of the seriousness with which the school takes these issues and it will offer the school’s marketing group a strong selling point for an increasingly aware pool of candidates.

3. Start a PhD program in Sustainable Business

If you can find a business school that offers a PhD in Sustainability, please contact the author of this paper, so that I can start preparing my application. There are business school programs that are amenable to research that leans in this direction, and non-business school programs that deal directly with sustainability (Appendix J), but I’ve yet to find one that combines these two fields. This is still true even though this is arguably the world’s greatest area of need. This is an incredible opportunity to quickly move from the position of laggard to leader while opening the door to new opportunities for the university. While the school is likely not positioned to begin a program immediately, it could create a sustainability department now and announce the intention to initiate a doctoral program in the near future.

4. Integrate Sustainability in all business school degree programs
Thus far, the Olin Business School has dabbled in sustainability with electives and co-curricular opportunities. Efforts are underway to add a “theme” to the second year of the EMBA program which will be another step in the right direction, but sustainability is not a stand-alone course like marketing or accounting. Instead, this is a topic that needs to be integrated throughout the program in the same manner that critical thinking is currently employed. Failing to do this will leave these issues at the nicety level for business decision makers. Lacking effective policy, we need enlightened business leaders to drive positive change. Submersion in fully integrated program will force business leaders to take into account the externalities that are currently ignored.

5. Create a Partnership with the university’s Department of Environmental Sciences and start offering cross-curricular opportunities.

Students would benefit from working on project teams with members from different functional disciplines. This would give them the opportunity to learn something of the other disciplines while building communication and leadership abilities. The University of Michigan’s Erb Institute is an excellent example of an effective partnership that could be modeled.

6. Create a research partnership with the Sustainability Consortium

At time of writing, the Sustainability Consortium (Appendix K) was still accepting research partners. The Olin Business School should act quickly to get involved while the opportunity still exists. Given the organization’s meteoric rise, it is likely that this will soon become an exclusive opportunity with elevated barriers to entry. The ante to get in now will likely pay great dividends over the long haul and will at least be a communication vehicle with programs that are already on this path.
7. Encourage participation in co-curricular opportunities

Washington University hosts several student organizations and competitions that promote sustainability. These offerings were not widely discussed while I was in the program, probably due to the age range of students and their typically demanding schedules. Taking a few minutes to promote these opportunities could have the combined benefits of bringing the perspective of senior business leaders to these efforts while offering the same students the opportunity to engage the school beyond the required curriculum. This would help build broader and deeper ties with the school, which should help the school with its critical alumni relations efforts.

8. Become a CleantechU Clean Tech University

CleantechU.org is a recently created organization that works to promote educational efforts towards green solutions to today’s environmental issues. (More specifics around what they do.) A handful of pioneering business schools partnered with CleantechU last year via their Net Impact chapters.

Rep. Bob Ingliss (R-S.C.), an outgoing congressman, recently bucked party doctrine to proclaim his belief that that man-made climate change is real. He further stated that we are mortgaging our future by putting off opportunities to move away from fossil fuel dependence, before setting his sights on members of the media, “who make a lot of money on talk radio and talk TV saying a lot of things. They slept at a Holiday Inn Express last night, and they're experts on climate change. They substitute their judgment for people who have Ph.D.s and work tirelessly [on climate change].” (Wing 2010) The congressmen pointed out the fact that he was happy that the proceedings would be part of an official record stating, “I'm very excited to be here Mr. Chairman, because this is on the record. And it's a wonderful thing about Congressional hearings
-- they're on the record. Kim Beazley who's Australia's ambassador to the United States tells me that when he runs into a climate skeptic, he says to them, "Make sure to say that very publicly, because I want our grandchildren to read what you said and what I said. And so, we're on the record, and our grandchildren, or great-grandchildren, are going to read." (Wing 2010)

With this paper, I am going on record with Representative Ingliss. We are undoubtedly at a crossroads where decisions will be based in both knowledge and values. The choices we will make and the outcomes are uncertain, but the specter of climate change is real and growing. I would like to declare my values here so that there can be no confusion of where I stand. I believe that we are all fortunate cohabitants on this Spaceship Earth (Fuller 1969) and not the Masters of the Universe (Lundgren 1987) we have long pretended to be. We are, however, masters of ourselves and can choose to live within the constraints set forth by nature.

**Conclusion**

This paper was written as specific guidance for the Olin Business School at Washington University in St. Louis, but the ideas should be viewed as broadly applicable. I hope that many of them will be implemented, or that they can provide a base from which even better opportunities spring forth. I believe this will give the school a competitive advantage in the rapidly evolving landscape of business education. However, I hope that it is a short-lived advantage, as the faster these principles migrate from exceptions to norms, the better off we will all be. This idea should be central to sustainability-based education and has been internalized by at least one school. Bainbridge Graduate Institute, states its mission, “To prepare students from diverse backgrounds to build enterprises that are financially successful, socially responsible and environmentally sustainable,” and then re-frames it as follows. “We mean this mission in the
broader sense – not only preparing our own students, but also helping other business schools integrate sustainability (i.e., environmental and social responsibility) into the heart of their programs.” (Bainbridge Graduate Institute 2010)

Bill McKibben, the widely respected author and activist, claims that we’ve already gone too far. He believes that our excesses have brought us past the point on the no return and that instead of looking to halt climate change, we now need to start figuring out how to adjust to ongoing changes. In looking at the Keeling Curve and reviewing recent climate related disasters, it is hard to argue this point. Pre-Industrial Revolution atmospheric carbon dioxide concentrations are believed to have been around 280 PPM (RealClimate.org 2004), but these have been steadily increasing and have recently hit a record high of 387 PPM. (Merchant 2010) For comparison, the CO2 level during the last ice age was 180 PPM. (Friedman 2008) The earth’s climate is incredibly complex and far from being fully understood, but the first hundred point increase coincided with the change from ice age to what we might call normal conditions. The additional hundred points has happened at a time when average temperatures increased by one degree. Climate deniers love to point to record snows as evidence to debunk global warming, but this is a fallacious argument. It is an undeniable fact that we have seen a rise in global temperature and since the beginning of the industrial revolution. This may not seem like much, but with global warming comes additional atmospheric moisture. This creates conditions that increase the likelihood, and potential intensity, of precipitation. We witnessed the inundation of twenty percent of Pakistan earlier this year and should prepare ourselves for more of the same as “atmospheric physicists calculate that the moisture-holding capacity of modern air increases by roughly 4 percent for every rise of one degree F.” (Lenart 2008) Thus, climate models project a
future increase in atmospheric water vapor along with the increase in global temperature. In fact, this projection was called “perhaps the single most robust aspect of global warming simulations” (Lenart 2008) by scientists comparing modern GCMs\(^2\). “In effect, the models are agreeing that the air will hold more water vapor as it warms up. This creates conditions that potentially could lead to bigger and more frequent floods by causing more intense, heavy rainfall events, such as hurricanes and tropical storms” (Lenart 2008) A recent report from Oxfam International states that, “21,000 people died due to weather-related disasters in the first nine months of 2010 – more than twice the number for the whole of 2009,” and that, “this year is on course to experience more extreme-weather events than the ten-year average of 770.” (Tck Team 2010)

While Pakistan suffered its deluge, Russia burned. Russian President Dmitry Medvedev, said many farmers were close to bankruptcy adding, "Grain has been lost on one quarter of the sown area," The massive fires which consumed over 20 percent of the country’s wheat fields, caused its government to ban exports of the crop through the 2011 growing season. Taking the third largest exporter of wheat off the market limits supply for net importing countries and puts them at risk of not being able to feed those who struggle to subsist under normal conditions.

Russia and Pakistan’s troubles contributed largely towards a sixty-three million metric ton shortfall in global wheat production. This equated to a two percent drop in production from the prior year when global production was expected to jump 1.2 percent. (Rudolph 2010) This leads to the annoyance of higher food prices for those reading this paper, but for many it can lead to hard choices like having to prepare smaller meals, trading down to less nutritious foods or having to skip meals in order to ensure that children are properly fed. Fortunately, unlike in 2007 and

\(^2\) Global Climate Models
2008, we have not yet seen riots caused by food shortages due to better than expected yields in East Africa. (Rudolph 2010)

During this summer’s fires which raged across a large swath of Russia, President Medvedev had the following to say, “Everyone is talking about climate change now,” “Unfortunately, what is happening now in our central regions is evidence of this global climate change, because we have never in our history faced such weather conditions in the past.” (Gillis 2010) Abdul Hafeez Sheikh, Pakistan's Finance Minister stated that his country, “had plans to export surplus wheat,” and that, "It was an economic opportunity since Russia has stopped exporting wheat, raising its price. We cannot export wheat now because we have to feed our own people." (Shikarpur 2010)

North Korean has seen as many people defect to South Korea over the past three years, 10,000, as left over the previous fifty owing largely to food shortages which have “worsened in recent years because of flooding, the most recent of which came during the country’s peak vegetable growing season.” The UN’s Food and Agricultural Organization’s Victoria Sekitoleko states, "I have visited homes, I have visited schools, I see these people along the road. I go where they go," she said. "Wherever I go you look in the eyes of somebody and you see a starving person." (Herman 2010) These problems are expected to increase with global stores of cereal grains “anticipated to shrink by seven percent according to FAO, with barley plunging 35 percent, maize 12 percent and wheat 10 percent.” (FAO.org 2010) In accordance with the drop in production, food prices have begun to rise, prompting Abdolreza Abbassian, a UN FAO economist, to say that “The numbers are getting dangerously close to what we saw in 2008,” (Rudolph 2010) the year of the last world food crisis.

Oxfam, an international aid organization which works to end poverty and injustice, released a report to coincide with the start of the COP16 talks. The report states that “21,000 people died
due to weather-related disasters in the first nine months of 2010 – more than twice the number for the whole of 2009,” and that “this year is on course to experience more extreme-weather events than the ten-year average of 770.” Political leaders in Cancun need only look out the window for evidence of climate change. Beaches there have been rebuilt twice in the last five years due to the effects of multiple category 4 and above hurricanes and a steady rise in sea level, “which has grown at a rate of about 2.2 millimeters a year.” (Stevenson 2010) In spite of this, the US delegation is threatening to walk out of COP16 if their demands are not met. (Goldenberg 2010)

We can no longer wait for a diplomatic solution to the climate problem. Decision makers on all levels of business can start to stem the tide that will eventually carry politics in the right direction. Fortunately, there are signs of hope. Businesses that are negatively impacted by climate change are forced to recognize its impact. Munich RE, a global reinsurance firm, released a statement emphasizing “the probability of a link between the increasing number of weather extremes and climate change.” (Munich RE 2010) Others see the opportunity of the first mover advantage as SC Johnson recently announced that they will begin not only listing all ingredients on their labels, but also “defining ingredients, and including an explanation of their purpose in the product.” (SC Johnson 2010) This bodes well for the future as long as others begin to follow suit. We need enlightened business leaders to make that happen. To get there, business schools need to refocus their efforts so that they can begin preparing those decision makers. The sooner we start heading down that path, the less likely we will end up in calamitous circumstances.
Appendix

A. Business School Rankings (Non-Sustainability Related)

1. Methodology

The Wall Street Journal's executive M.B.A. rankings are based on three elements: how a school scored in a survey of recent E.M.B.A. graduates, how it fared in a survey of companies familiar with E.M.B.A. programs; and how well it imparted management and leadership skills identified as crucial in the surveys of recent graduates and companies. The skill component is determined by two surveys: one for members of the most current graduating executive M.B.A. class, and the second for companies that employ E.M.B.A. students. With the help of Management Research Group, based in Portland, Maine, we focused on questions designed to measure how well schools do in helping to shape and build strong managers and leaders. Critical Insights, also based in Portland, hosted and administered the surveys electronically.

2. 2010 Executive MBA Rankings (WSJ and competitors)

<table>
<thead>
<tr>
<th>Wall Street Journal</th>
<th>Business Week</th>
<th>U.S. News</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pennsylvania (Wharton)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2. Washington Univ. (Olin)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3. Thunderbird (Arizona)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4. Southern California (Marshall)</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>5. Northwestern (Kellogg)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6. Notre Dame (Mendoza)</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>7. New York (Stern)</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>8. Cornell (Johnson)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9. Columbia Business School</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. UNC (Kenan-Flagler)</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>11. UCLA (Anderson)</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>12. Texas-Austin (McCombs)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>13. Arizona State (Carey)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14. Illinois-Urbana-Champaign</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>15. Michigan (Ross)</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>16. Chicago (Booth)</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. Ohio State (Fisher)</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>18. Cornell/Queen’s Universities</td>
<td>25</td>
<td>-</td>
</tr>
<tr>
<td>19. Rice (Jones)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>20. Boston University</td>
<td>23</td>
<td>-</td>
</tr>
<tr>
<td>21. Rutgers University</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>22. Maryland (Smith)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>23. Berkeley (Haas)</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>24. IE Business School (Spain)</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>25. Vanderbilt (Owen)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* Italics denotes programs in the top ten of the Beyond Grey Pinstripes Global 100
B. Examples of Disruptive Innovation

<table>
<thead>
<tr>
<th>Disruptor</th>
<th>Disruptee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cellular phones</td>
<td>Fixed line telephony</td>
</tr>
<tr>
<td>Community colleges</td>
<td>Four-year colleges</td>
</tr>
<tr>
<td>Discount retailers</td>
<td>Full-service department stores</td>
</tr>
<tr>
<td>Retail medical clinics</td>
<td>Traditional doctor’s offices</td>
</tr>
</tbody>
</table>

1. The Keeling Curve - CO2 Concentration (PPM) from 1958 to 1994

![Keeling Curve Image](image)

C. Aspen Institute – Beyond Grey Pinstripes (BGP) Top Ten Lists

1. United States Schools

<table>
<thead>
<tr>
<th>Rank</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>U. of Michigan (Ross)</td>
</tr>
<tr>
<td>2</td>
<td>Yale School of Management</td>
</tr>
<tr>
<td>3</td>
<td>Stanford GSB</td>
</tr>
<tr>
<td>4</td>
<td>Notre Dame (Mendoza)</td>
</tr>
<tr>
<td>5</td>
<td>UC Berkeley (Haas)</td>
</tr>
<tr>
<td>6</td>
<td>NYU (Stern)</td>
</tr>
<tr>
<td>7</td>
<td>Columbia Business School</td>
</tr>
<tr>
<td>8</td>
<td>U. of Virginia (Darden)</td>
</tr>
<tr>
<td>9</td>
<td>Cornell (Johnson)</td>
</tr>
<tr>
<td>10</td>
<td>GWU School of Business</td>
</tr>
</tbody>
</table>

2. International Schools

<table>
<thead>
<tr>
<th>Rank</th>
<th>School</th>
</tr>
</thead>
</table>

24
D. Aspen Institute – Beyond Grey Pinstripes (BGP) Global 100 Rankings

1. BGP - Goals of the Study
i. Promote and celebrate innovation in business education—The School Rankings call attention to institutions and people that do this work well.

ii. Inform prospective students about social, ethical and environmental impact management programs.

iii. Raise the bar by challenging business schools to incorporate social and environmental impact management topics into their curricula.

iv. Inform corporate recruiters of business schools that are providing training in social and environmental skills as part of business decision making.

v. Disseminate best practices in teaching, research, and extracurricular activities—The Search function provides access to detailed information—often including syllabi—on thousands of courses, scholarly journal articles, and more.

vi. Facilitate conversation—Real change only comes after students, faculty, administrators and business leaders begin to discuss these issues.

2. Scoring Breakdown

i. **Availability of Relevant Courses (20%)** counts the number of courses offered that the scoring team agrees contain social, environmental or ethical content. This metric answers the question: how much opportunity do students have to take courses with this content?

ii. **Student Exposure (25%)** measures the extent to which students are actually exposed to such content. The formula used in this calculation is the following: \([\text{percent of course time dedicated to such issues} \times \text{course credits / total degree credits} \times \text{course enrollment / total school enrollment}]\). Thus, all things being equal, longer courses, or dedicated courses, or courses with higher enrollments (whether required or simply popular electives) will be worth more in this calculation.

iii. **Relevant Courses on For-Profit Impact (30%)** is a simple count of the number of courses that not only demonstrate their relevance to the survey (see “Availability of Relevant Courses” above), but specifically address the intersection of social and environmental issues in mainstream, for-profit business. In other words, this metric measures how many courses explicitly discuss how for-profit, mainstream business can be a force for improving social and environmental conditions. For example, course content that focuses on the nonprofit sector or on a philosophical approach to ethics would get credit in the “Availability of Relevant Courses” metric, but would not get credit in this metric. However, a course in finance for new ventures, for example, that discusses the organizational practices that are needed “to sustain the lasting health of natural, social and economic systems,” would receive this additional credit. (The quote is from one course description submitted in the last round).

iv. **Faculty Research (25%)** counts the number of scholarly articles written by business school faculty, published in peer-reviewed, business journals in calendar years 2009 and 2010, that contain social, environmental or ethical content. This metric is designed to indicate the extent to which professors on campus explore these issues in their own research. Research Fellows review all article titles and abstracts using similar criteria to the “Availability of Relevant Courses” metric. Then, accepted journal articles are weighted according to its journal quality, as determined by its journal impact factor.

E. **AASHE.org - Graduate Business Programs in Sustainability**

1. **Sustainability-Focused MBA Programs**

Antioch University New England  **MBA in Organizational and Environmental Sustainability**
<table>
<thead>
<tr>
<th>Institution</th>
<th>Program Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bainbridge Graduate Institute</td>
<td>MBA in Sustainable Business</td>
</tr>
<tr>
<td>City University of Seattle</td>
<td>MBA in Sustainable Business</td>
</tr>
<tr>
<td>Colorado State University</td>
<td>MSBA in Global Social Sustainable Enterprise</td>
</tr>
<tr>
<td>Dominican University of California</td>
<td>MBA in Sustainable Enterprise</td>
</tr>
<tr>
<td>Duquesne University</td>
<td>MBA in Sustainability</td>
</tr>
<tr>
<td>Franklin Pierce University</td>
<td>MBA in Energy &amp; Sustainability Studies</td>
</tr>
<tr>
<td>Goddard College</td>
<td>MA in Socially Responsible Business and Sustainable Communities Program</td>
</tr>
<tr>
<td>Green Mountain College</td>
<td>MBA in Sustainable Business Practices</td>
</tr>
<tr>
<td>Maharishi University of Management</td>
<td>MBA in Sustainability</td>
</tr>
<tr>
<td>Marlboro College</td>
<td>MBA in Managing for Sustainability</td>
</tr>
<tr>
<td>Marshall Goldsmith School of Management</td>
<td>Bright Green MBA</td>
</tr>
<tr>
<td>Marylhurst University</td>
<td>Online MBA in Sustainable Business</td>
</tr>
<tr>
<td>Presidio Graduate School</td>
<td>MBA in Sustainable Management</td>
</tr>
<tr>
<td>San Francisco Institute of Architecture</td>
<td>The Green MBA</td>
</tr>
<tr>
<td>University of Maine</td>
<td>MBA Business and Sustainability</td>
</tr>
<tr>
<td>University of Michigan</td>
<td>Dual Degree: MBA and MS in Natural Resources and Environment</td>
</tr>
<tr>
<td>University of Phoenix</td>
<td>Master of Business Administration with a Concentration in Energy Management</td>
</tr>
</tbody>
</table>

### 2. MBA Specializations/Concentrations/Emphases

<table>
<thead>
<tr>
<th>Institution</th>
<th>Program Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appalachian State University</td>
<td>Concentration in Sustainable Business</td>
</tr>
<tr>
<td>Aquinas College</td>
<td>Concentration in Sustainable Business</td>
</tr>
<tr>
<td>Benedictine University</td>
<td>Concentration in Sustainable Business and Sustainable Leadership</td>
</tr>
<tr>
<td>College of Business Administration</td>
<td>Specialization in Building Sustainable Enterprises</td>
</tr>
<tr>
<td>University of South Florida</td>
<td></td>
</tr>
<tr>
<td>College of Business</td>
<td></td>
</tr>
<tr>
<td>University of South Florida St. Petersburg</td>
<td>Concentration in Corporate Social Responsibility</td>
</tr>
<tr>
<td>Fuqua School of Business</td>
<td>Concentration in Social Entrepreneurship</td>
</tr>
<tr>
<td>Duke University</td>
<td></td>
</tr>
<tr>
<td>School of Business</td>
<td>Concentration in Environmental Policy and Management</td>
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<tr>
<td>George Washington University</td>
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<tr>
<td>-------------------------------</td>
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</tr>
<tr>
<td>Heller School for Social Policy and Management</td>
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<tr>
<td>Brandeis University</td>
<td></td>
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<tr>
<td>Concentration in Sustainable Development</td>
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<table>
<thead>
<tr>
<th>Kenan-Flagler Business School University of North Carolina at Chapel Hill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration in Sustainable Enterprise</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Marshall Goldsmith School of Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Business Concentration</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Milano The New School for Management and Urban Policy</th>
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</thead>
<tbody>
<tr>
<td>Specialization in Sustainability Management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sauder School of Business University of British Columbia</th>
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</thead>
<tbody>
<tr>
<td>Specialization in Sustainability and Business</td>
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</table>

<table>
<thead>
<tr>
<th>Saunders College of Business Rochester Institute of Technology</th>
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</thead>
<tbody>
<tr>
<td>Concentration in Environmentally Sustainable Management</td>
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</table>

<table>
<thead>
<tr>
<th>Schulich School of Business York University</th>
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</thead>
<tbody>
<tr>
<td>Specialization in Business &amp; Sustainability</td>
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</table>

<table>
<thead>
<tr>
<th>Stuart Graduate School of Business Illinois Institute of Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration in Sustainable Enterprise</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Tuck School of Business Dartmouth College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Interest in Nonprofit &amp; Sustainability Management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lundquist School of Business University of Oregon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center for Sustainable Business Practices Concentration in Sustainable Business</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wharton School University of Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major in Environmental and Risk Management</td>
</tr>
</tbody>
</table>

3. Business School Academic Centers or Research Initiatives on Sustainability

<table>
<thead>
<tr>
<th>Boston College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center for Corporate Citizenship</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case Western Reserve University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weatherhead Institute for Sustainable Enterprise</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case Western Reserve University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fowler Center for Sustainable Value</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Columbia University</th>
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</thead>
<tbody>
<tr>
<td>Social Enterprise Program</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Cornell University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center for Sustainable Global Enterprise</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duke University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center for the Advancement of Social Entrepreneurs</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Dartmouth College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allwin Initiative for Corporate Citizenship</td>
</tr>
</tbody>
</table>
F. Net Impact – Business as Unusual Guide (Member Survey Results)

<table>
<thead>
<tr>
<th>School</th>
<th>Chapter Status</th>
<th>% Net Impact Members</th>
<th>% &quot;very active&quot; members</th>
<th>% &quot;somewhat active&quot; members</th>
<th>% Faculty Emphasis</th>
<th>Course Offerings: School is committed to incl. soc. &amp; enviro themes in curriculum</th>
<th>Course Offerings: School is committed to incl. soc. &amp; enviro themes in activities</th>
<th>Net Impact members are prepared for socially responsible leadership</th>
<th>All students are prepared for socially responsible leadership</th>
</tr>
</thead>
<tbody>
<tr>
<td>York (Schulich)</td>
<td>-</td>
<td>-</td>
<td>20%</td>
<td>30%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>U. of Michigan (Ross)</td>
<td>Gold</td>
<td>38%</td>
<td>30%</td>
<td>40%</td>
<td>64%</td>
<td>79%</td>
<td>73%</td>
<td>89%</td>
<td>70%</td>
</tr>
<tr>
<td>Yale</td>
<td>Gold</td>
<td>47%</td>
<td>50%</td>
<td>25%</td>
<td>89%</td>
<td>86%</td>
<td>97%</td>
<td>84%</td>
<td>67%</td>
</tr>
<tr>
<td>Stanford GSB</td>
<td>-</td>
<td>25%</td>
<td>40%</td>
<td>54%</td>
<td>46%</td>
<td>50%</td>
<td>75%</td>
<td>No answer</td>
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<tr>
<td>Notre Dame (Mendoza)</td>
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<td>18%</td>
<td>30%</td>
<td>60%</td>
<td>77%</td>
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<td>81%</td>
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<td>11%</td>
</tr>
<tr>
<td>UC Berkeley (Haas)</td>
<td>Silver</td>
<td>30%</td>
<td>30%</td>
<td>45%</td>
<td>77%</td>
<td>82%</td>
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<td>RSM Erasmus</td>
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<td>80%</td>
<td>20%</td>
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<td>76%</td>
<td>46%</td>
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<td>30%</td>
<td>50%</td>
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<td>72%</td>
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<tr>
<td>IE</td>
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<td>13%</td>
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<td>25%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Columbia</td>
<td>-</td>
<td>40%</td>
<td>20%</td>
<td>50%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Washington University</td>
<td>-</td>
<td>41%</td>
<td>50%</td>
<td>30%</td>
<td>41%</td>
<td>30%</td>
<td>59%</td>
<td>56%</td>
<td>32%</td>
</tr>
</tbody>
</table>

G. York University – Sustainability-Related Coursework

1. **Department**: Business and Government  
   **Course Name**: Ethical Politics (SB PUBL 5605 3.00)  
   This course examines the philosophical and practical implications of expectations for ethical behavior among public officials in a contemporary environment. Several current approaches to political ethics...
will be considered in relation to four sub-fields of political ethics: democratic accountability, dishonesty and impartiality (including conflict of interest), and the ethics of public policy. The course will explore both the external dimension of ethical behavior in politics (relations between public servants and the public), and the internal dimension (relations among public servants). Throughout the course, the relevance of insights from ethical theory for the day-to-day problems faced by public servants, legislators and cabinet ministers will be emphasized and social impact of decisions considered.

2. **Department:** Business Law  
   **Course Name:** Joint MBA/LLB Course: Environmental Law (LW 2880.04)  
   This course provides an introduction to Canadian environmental law, with a focus on federal and Ontario environmental law. It surveys the theoretical, doctrinal and practical dimensions of environmental law, with attention to comparative and international dimensions. Major issues in environmental law are brought to life via guest lectures, the Web, videos, and scenarios drawn from real-world environmental controversies. These scenarios are taken up through a series of student-led legal briefings, which research legal issues and advise hypothetical clients from different social groups including environmentalists and First Nations. Course topics typically include histories of environmental law; major ideas and theories of environmental law; division of powers and federalism; command regulation and its critics; risk and precaution; water pollution and conservation; air pollution (with a focus on the Ontario Environmental Protection Act); climate change; toxic substances; contaminated land; environmental compliance and enforcement; economic instruments of environmental regulation; financial institutions and the environment; voluntary environmental codes; public participation and environmental rights (with attention to the Ontario Environmental Bill of Rights); common law environmental actions; environmental impact assessment; parks and protected areas; endangered species; environmental justice; aboriginal peoples and the environment; international environmental law; and international trade and the environment.

3. **Department:** Corporate Responsibility/Business Ethics  
   **Course Name:** Management Practices for Sustainable Business (SB BSUS 6300 3.00)  
   This course takes a "triple bottom line" approach, defining sustainability in business as balanced progress towards economic performance, social justice and environmental quality. The course examines various sustainability tools and techniques and how they are used by managers in a variety of disciplines in business: e.g., marketing, product development, human resources, community relations, investor relations, Environment, Health and Safety (EHS) and other functions. The course addresses the assumptions and approaches as well as the managerial applications of these techniques. It also seeks to review how different approaches are being advanced in North America and Europe. The three main sections of the course cover: I) markets and products; II) operations; and III) social, economic and stakeholder engagement practices employed by leading corporations embracing sustainability. This course provides a detailed review and analysis of the environmental and stakeholder management tools and techniques used by managers. In addition, it considers how these techniques fit together to form management systems and examines their underlying assumptions, approach and role in managerial decision-making. Techniques include: environmental management systems and audits; product-life cycle analysis; and design for the environment; social and environmental reporting; sustainability and organizational change and stakeholder approaches to management.

4. **Department:** Corporate Responsibility/Business Ethics  
   **Course Name:** Business Strategies for Sustainability (SB BSUS 6500 3.00)
All organizations impact the natural and social environment. However, it is only recently that sustainability, social and environmental challenges have become strategic issues for business and its managers. For an increasing numbers of companies, sustainability in social, environmental and economic meaning is now an integrated part of organizational strategy formulation and implementation. Through a series of 'live cases', this course is designed to introduce students to the critical strategic and managerial issues in developing, implementing and adapting strategy to create environmental, social and economic value.

International examples of visionary thinking and corporate re-invention in line with principles of sustainability include Shell and BP (oil and gas), Interface and Collins and Aikman (flooring), The Body Shop and Aveda (cosmetics), Patagonia (clothing), Novo Nordisk (enzymes and biotech), and DuPont (chemicals). In Canada, firms like Husky Injection Molding, van City Credit Union, Metro Credit Union and Mountain Equipment Co-op might be categorized as having invented or “re-invented” around principles of sustainability. Other, more mainstream Canadian companies are also adopting a strategic approach to sustainability, taking significant steps towards external and internal realignment of their businesses and product offerings. Many of these are in the energy, forestry, mining and minerals sectors (e.g., Suncor, Nexen, TransAlta, etc).

5. **Department**: Corporate Responsibility/Business Ethics  
   **Course Name**: Independent study in Business Ethics – Corporate Law (SB ETHC 6900 1.50)  
   The objectives of this course are to gain a deeper understanding of ethics in the corporate law context. Applying concepts of socialization/rationalization to reveal structural influences on lawyers.

6. **Department**: Corporate Responsibility/Business Ethics  
   **Course Name**: Ethics and Social Responsibility in Management (SB ETHC 5510 1.50)  
   This course focuses on the social, environmental and ethical impacts that management should consider when strategic decisions are made. As the attention of the media and the population at large turns more frequently to the ethical behaviors of leaders, and to the social impacts of business, this course offers ways to effectively recognize, evaluate, and respond to the problems facing managers. The emphasis in this course will be on enhancing personal moral awareness and imagination, developing individual and organizational strategies for dealing with social challenges, and critically evaluating tools for ethics and social responsibility management.

7. **Department**: Corporate Responsibility/Business Ethics  
   **Course Name**: Ethics and Finance (SB ETHC 6950 1.50)  
   This course will examine the role of ethics in finance and financial services. It will begin with an overview of the need of ethics in finance overview of financial environment and an impact of current financial events on society at large. Tools for identifying ethical issues will be introduced and evaluated. The course will then turn to an examination of ethical issues in financial services, investment decisions and ethics in financial markets. The course will conclude with a discussion of the dominant theories of the firm and their ethical implications.

8. **Department**: Corporate Responsibility/Business Ethics  
   **Course Name**: Artisanal and small scale mining sector. Sustainability with special reference to Tanzania. (SB BSUS 6900 3.00)  
   The objectives of this course are to challenge and find opportunities of sustainability in the A & SSM
sector, role of government, international institutions, NGO’s and corporate social responsibility in finding solutions for sustainability. Analysis and recommendations.

9. **Department**: Economics  
**Course Name**: Environmental Economics for Business (SB ECON 6170 3.00)  
The environment is no longer viewed as a "free good", but rather a scarce resource. Consumers and governments have become aware of this fact, and are now calling upon businesses to act as "environmentally conscious" leaders. This course focuses on the relationship between the economy and the environment. The economy consists of many agents or stakeholders including citizens, producers (or businesses), governments and non-governmental agencies (NGOs) and other social groups. The economic and social setting in which these agents interact and from which they derive their resources is the natural environment. Environmental economics is the study of the allocation of this scarce resource.

The topics to be addressed in this course include: 1) Property rights and externalities; (2 Cost-Benefit analysis; 3) The role of risk analysis and risk management in environmental protection; 4) Life cycle analysis; 5) Clean Energy Decision-making; 6) Criteria for evaluating environmental policies including social and economic impact; 7) Command and control strategies; 8) Incentive-based strategies; 9) Approaches to achieving sustainability, minimizing environmental footprint; and 10) International Environmental Agreements.

10. **Department**: Entrepreneurship  
**Course Name**: Corporate Entrepreneurship (SB ENTR 6645 3.00)  
The course focuses on entrepreneurial activities in large, established corporations. To survive and to enable continued growth in today's fast changing economic and social environment, large corporations need to continually renew themselves through new products and new businesses. The course will introduce students to the best practices and theory on fostering innovation through the process of identifying new ideas, such as the value of social entrepreneurship within large corporations, and converting them to commercial products and new businesses. Strategies discussed in class include organizational structures, implementation challenges of new ventures within an established corporation, as well as options to leverage external partners outside of the boundaries of the corporation within the process of developing new businesses. The course discusses corporate social responsibility and addresses environmental issues within the strategy for sustainable growth.

11. **Department**: Environmental Management  
**Course Name**: Sustainable Value Creation (SB BSUS 6900.030)  
The objectives of this course are to further understanding of how to emphasize social inequality to become a source of competitive advantage. Specifically focusing on water usage in the developing world.

12. **Department**: Environmental Management  
**Course Name**: Development of a Standard Envelope Label for Food Products (SB BSUS 6900 3.00)  
The objectives of this course are to apply both theoretical knowledge regarding sustainability and hands-on knowledge working in consumer packaged goods in order to discover the feasibility of a standardized eco-labeling scheme in Canada, particularly in the food products marketing.
13. **Department**: Environmental Management  
**Course Name**: Strategy Field Study - Business and Environment Management (SB MGMT 6100 3.00)  
Students interested in attaining the Graduate Diploma in Business and Environment concurrently with the Schulich Graduate degree are required to pursue the strategy field study in the area of sustainability and environmental management. This course provides a detailed review and analysis of the environmental and stakeholder management tools and techniques used by managers. Techniques include: environmental management systems and audits; product-life cycle analysis; and design for the environment; social and environmental reporting; sustainability and organizational change and stakeholder approaches to management.

14. **Department**: Finance  
**Course Name**: New Philanthropy and Social Investing (MGTM31421)  
This new course aims to increase your understanding of the full range of philanthropy and social investing tools and options and the reason for its growing importance in the 21st century worldwide and throughout all levels of society. It will look at the motivation for engaging in philanthropy – both individual and corporate; how philanthropy and social investing become strategic and solution-oriented; and how to leverage social investments to stimulate systemic change; the internal impact on corporate loyalty and performance; and more. The seminar will combine theory and practice, balancing academic knowledge of this emerging discipline with case studies and discussions and insights from expert practitioners ranging from a hedge fund billionaire to foundation officers and wealth advisors and corporate leaders from Europe and the United States including the William and Melinda Gates Foundation, Nokia, Danone, the King Baudoin Foundation, TNT and others. Through the lectures, readings, case studies and group projects, we seek to provide you with the strategic and analytical skills to make informed decisions concerning the role of philanthropy in your personal and professional lives.

15. **Department**: Finance  
**Course Name**: Enterprise Risk Management and Strategy (SB FNSV 6990 1.50)  
Strategy and risk management are two sides of value creation for companies. Strategic choice must identify how these choices affect a broad array of stakeholders. A firm must be organized to recognize, measure, monitor, and disclose risks if it is to implement its strategy. Students will have 1) an understanding of the broad environment in which the firm operates; 2) an understanding of the economic and social risk types and their interactions; 3) the role of governance and accountability in managing these risks; 4) the ability to analyze new demands that are being placed upon the firm and how these constitute “risks” that need to be managed. The course specifically focuses on the concept of Reputational Risk and how the public’s perception of the importance of ethics, reputation and Corporate Social Responsibility constitute a portion of a firm’s value. The case study “Broken Trust: The Role of Professionals in the Enron Debacle” will be studied.

16. **Department**: Information Technology and Systems (MIS/IT)  
**Course Name**: Managing new Technology (SB OMIS 6700 3.00)  
The course outlines the social and economic impact of new technologies on companies’ development and people’s lives. Managing technology requires a long term process for planning and acquiring capabilities that strengthen relationships between members of project teams, customers, suppliers and collaborators. Competence in forecasting, evaluating and implementing new technology is a function of an accumulated knowledge embodied in the social groups and business processes of an
organization and has social impact on the society at large. Coping with the uncertainty and ambiguity associated with innovation requires an understanding of intellectual property and business risk. Understanding the dynamics of innovation on the competitiveness of firm in social, economic and environmental areas is one of the major topics in the course.

17. **Department**: Information Technology and Systems (MIS/IT)
   **Course Name**: Management Information Systems (SB OMIS 6710 3.00)
   This course acquaints students with the management issues, concepts and terminology associated with information systems technology. With its focus on economic and social issues, the course is of interest to students with either a technical or a non-technical background. Issues discussed include: telecommunications; networks; multimedia; data models and their relation to organization models; systems development processes; and systems theory. Students will learn to recognize the technical and organizational problems generated by introducing new technology and the long-term organizational, cultural and the environmental implications of these decisions.

18. **Department**: International Management
   **Course Name**: Regional Analysis - Europe (SB INTL 5331 3.00)
   The course provides specialized knowledge of the chosen focus region. Cross-cultural management from an international perspective including ethics, corporate social responsibility, environment management, community development and cultural sensitivity for the region are thoroughly examined. The course will give students the knowledge and tools to adapt to cultural ambiguities and idiosyncrasies that can be major pitfalls for business deals and ventures between two economic regions.

19. **Department**: International Management
   **Course Name**: Regional Analysis – Asia Pacific (SB INTL 5332 3.00)
   The course provides specialized knowledge of the chosen focus region. Cross-cultural management from an international perspective including ethics, corporate social responsibility, environment management, community development and cultural sensitivity for the region are thoroughly examined. The course will give students the knowledge and tools to adapt to cultural ambiguities and idiosyncrasies that can be major pitfalls for business deals and ventures between two economic regions.

20. **Department**: International Management
    **Course Name**: Regional Analysis – Latin America (SB INTL 5333 3.00)
    The course provides specialized knowledge of the chosen focus region. Cross-cultural management from an international perspective including ethics, corporate social responsibility, environment management, community development and cultural sensitivity for the region are thoroughly examined. The course will give students the knowledge and tools to adapt to cultural ambiguities and idiosyncrasies that can be major pitfalls for business deals and ventures between two economic regions.

21. **Department**: International Management
    **Course Name**: Regional Analysis – North America (SB INTL 5334 3.00)
    The course provides specialized knowledge of the chosen focus region. Cross-cultural management from an international perspective including ethics, corporate social responsibility, environment management, community development and cultural sensitivity for the region are thoroughly examined.
The course will give students the knowledge and tools to adapt to cultural ambiguities and idiosyncrasies that can be major pitfalls for business deals and ventures between two economic regions.

22. **Department**: International Management  
**Course Name**: Regional Analysis – South & South East Asia (SB INTL 5336 3.00)  
The course provides specialized knowledge of the chosen focus region. Cross-cultural management from an international perspective including ethics, corporate social responsibility, environment management, community development and cultural sensitivity for the region are thoroughly examined. The course will give students the knowledge and tools to adapt to cultural ambiguities and idiosyncrasies that can be major pitfalls for business deals and ventures between two economic regions.

23. **Department**: International Management  
**Course Name**: Work Term (SB INTL 6060 9.00)  
Through practical international experience students learn first-hand how to navigate cross-cultural issues, adapt to change as well as obtain a better understanding of the intricacies of international trade and business practices, policies in foreign markets. The aim of the work term is to provide students a holistic and practical learning experience to deal with the social, environmental, cultural and communal aspects of leading organizations in foreign markets.

For the work term, students spend a minimum of 12 weeks overseas working for a company, government agency or research institution (typically within the student's region and country of focus which uses a student's IMBA language).

24. **Department**: International Management  
**Course Name**: International Field Study (SB INTL 6200 3.00)  
Utilizing various tools, such as stakeholder analysis, PESTE (i.e, Political, Economic, Social, Technological and Environmental), Porter’s model, SWOT (i.e., Strength, Weakness, Opportunity and Threat) and Porter’s value chain to identify the social and environmental impact of the management decisions, students undertake a comprehensive strategic analysis of an organization (“client site”) and its environment. Students need to incorporate the triple bottom line into their analysis to fully understand the organization. Each student team studies a company or organization located outside of Canada, or has substantial operations in another region. This course involves advanced analysis and creation of solutions for business challenges that are complex and multidimensional. This strategy study spans a three-term period, both at Schulich and abroad.

25. **Department**: International Management  
**Course Name**: Strategic Management across Borders (SB INTL 6600 3.00)  
This course is designed to integrate and build on the knowledge, skills, and experiences students have amassed from the various components of the IMBA program. It derives its logic from the increasing globalization of business and seeks to develop concepts and tools for designing and implementing effective competitive strategies in the rapidly changing global business environment addressing multiple economic, social, technological and environmental issues. The purpose of this course, ultimately, is to push "learnings" from various program components to the next level, to capitalize on their individual and collective value, and to facilitate their transfer to an international career.
26. **Department**: International Management  
**Course Name**: Introduction to International Business (SB IBUS 6410 3.00)  
This course examines economic, social and environmental issues and problems which arise when business operations or institutions transcend national boundaries and become international and multinational in scope and character. Adaptations of the basic managerial functions in different countries are emphasized in terms of cultural sensitivities, different social environment and stakeholder responsiveness. This framework is applied to current trade patterns and manufacturing costs in Canadian business environment, including government policy options and the implications for corporate strategies. Topics include an in-depth study of the following: Global Landscape, MNEs, Political & Cultural Issues, Human Resources, Social and Environmental Ethical Issues, R&D, Operating between Regions, and Technology.

27. **Department**: International Management  
**Course Name**: Managing Across Borders (SB INTL 6500 3.00)  
Stakeholder analysis, business ethics across borders, environmental and the social impact of financial decisions are the focus of this course. The foreign investment negotiation simulation links students to classes from two other universities located in different regions of the world. Special attention is paid to behavioral aspects of cross-cultural issues throughout the negotiation process. The course is as much a reflection course and it includes both context and stakeholders perspectives. The course has a section on stakeholders, ethics and sustainability and some of the assignments invite students to address those issues.

28. **Department**: Management  
**Course Name**: Skills for Leadership and Governance (SB MGMT 5150 3.00)  
This course is designed to prepare students for the new economy and will emphasize the social, environmental and ethical impacts of management decisions. In a context of complexity, globalization, diversity, technological change and uncertainty, new skills are required. For example, managers must be adaptable and have the capacity to deal with constant change. Every student in the Schulich MBA program is required, as a part of the core leadership and management skill development, to confront, explore, challenge and potentially change the perspectives and assumptions they bring to the course and their future careers. There is an explicit focus on the strengths and limitations of globalization; the relationship between business and the environment; respect for the “triple-bottom line” stakeholder model; social and organizational diversity; the impact of power and politics on decision-making; and how business decisions need to be approached within a broad social/cultural framework, not just within the context of the narrow, bottom line.

29. **Department**: Management  
**Course Name**: Managing in a Contemporary Context (SB MGMT 5250 3.00)  
This course focuses on the social, environmental and ethical impacts of global management decisions and their effect on Canadian policy. Students acquire the worldview, issue-sensitivity, and base-line knowledge they will need to keep abreast of national and international events affecting Canadian business in a global context. The following themes which differentiate Schulich’s program will be stressed: 1) international awareness from a Canadian perspective, 2) entrepreneurial spirit, and 3) concern for the environment and professional ethics. The course provides a sampling of the most relevant issues facing managers in business, labour and public sector organizations and the tools needed to properly understand and assess the issues facing Canadian business. It introduces students to the national and international context of Canadian economic activity. The uniquely Canadian aspects
of our corporate sector are examined and their implications for the competitiveness of Canadian firms and our well being (economic and otherwise) as a nation are explored. In addition, the course discusses the roles and implications of NAFTA, GATT, WTO, IMF, World Bank, OECD and other multilateral agreements on Canadian industry.

30. **Department**: Management  
**Course Name**: Strategy Field Study (SB MGMT 6100 3.00)  
The Strategy Field Study is the capstone course of the Schulich MBA program. It is an intensive, eight-month project where groups of 6 to 8 students undertake a comprehensive strategic analysis of an organization (“client site”) and its external and internal environment. Students utilize various tools and frameworks, such as stakeholder analysis, PESTE (i.e., Political, Economic, Social, Technological and Environmental), Porter’s model, SWOT (i.e., Strength, Weakness, Opportunity and Threat) and Porter’s value chain to identify the social and environmental impact of the management decision. The triple bottom line is incorporated into their analysis to fully understand the organization. This course involves advanced analysis and creation of solutions for business challenges that are complex and multidimensional.

31. **Department**: Management  
**Course Name**: Strategy Field Study - Global Leadership Program (GLP) (SB MGMT 6100 3.00)  
The Global Leadership Program takes the place of the traditional Strategy Field Study and involves creating a market entry strategy for a foreign company that is interested in entering the North American market or a Canadian company contemplating foreign markets. Students work in bilateral teams composed of five Schulich students, plus three to five students from a partner school. Previous partners include: the Wharton School, University of Pennsylvania in the US; Copenhagen Business School (CBS) in Denmark; the Recanati School of Business, Tel Aviv University in Israel; the Management Development Institute of Argentina (IDEA) in Argentina; and the Monterrey Institute of Technology (ITESM) in Mexico. Students utilize various tools and frameworks, such as stakeholder analysis, PESTE (i.e., Political, Economic, Social, Technological and Environmental), Porter’s model, SWOT (i.e., Strength, Weakness, Opportunity and Threat) and Porter’s value chain to identify the social and environmental impact of the management decision. The triple bottom line is incorporated into their analysis to fully understand the organization. This course involves advanced analysis and creation of solutions for business challenges that are complex and multidimensional.

32. **Department**: Management  
**Course Name**: Development of Prototypes (SB PROP 6200 3.00)  
Real estate is one of our largest industries and spans a broad range of economic and social activities. This industry has implicit moral and social responsibilities; is entrusted with environmental stewardship; and its products are consumed by every member of society on a daily basis. This course is an introduction to the physical relationship of development to its site and its context. The course uses a series of development prototypes to examine the way that developers interact with architects, engineers and planners in the development process. The course also deals in practical matters – how things are made and how these things contribute value to society as places of work, living, recreation, shopping and other factors such as the environmental and social well-being of a community.

This course deals with development, developers, and the products that they create. The course provides an understanding of the business of real estate development, insights into the economic,
functional, technical, and aesthetic factors that shape dominant building forms and an understanding of the link between demand and product development.

33. **Department**: Management

**Course Name**: Managing the Development Process (SB PROP 6400 3.00)

The course provides a solid overview of the process in developing value in real estate, how economic and social value is achieved, understanding the economic, social and environmental complexities involved in each of the disciplines generally associated with managing the real estate development process and the challenges faced by developers in the current business environment. This course focuses on the complex interdependency between the public and private sectors in real property matters, exploring both procedural and substantive issues including environmental, conservation and social impact management. The private sector must engage the public sector- whether in its role as land owner, policy maker and/or regulator in virtually every real estate transaction. Understanding the regulations, the approvals process, the responsibilities, the politics, the structures, financing, and the changing nature of the economic partnerships between the two is crucial to successful development and land asset management. Specific projects, largely in Ontario, will be studied, and comparisons made to projects in other US and Canadian cities.

34. **Department**: Management

**Course Name**: Real Property Portfolio Management (SB PROP 6600 3.00)

The course deals with the application of modern portfolio theory to the creation and management of real property investment portfolios including the one’s of socially responsible and environment friendly establishments. It includes a review of portfolio theory in a real asset context; an examination of the concepts of risk, return and diversification that influence asset allocation decisions; the portfolio planning process as it applies to the creation and implementation of portfolio strategy; and the consequences of international diversification on portfolio performance. The course also introduces an analysis of an array of investor types who have a great impact on the social and business environment at large.

35. **Department**: Management

**Course Name**: Structuring Real Estate Transactions (SB PROP 6800 3.00)

This course focuses on the complexity of the real estate field, numerous stakeholder analysis, and the business and legal tools and techniques necessary to ethically structure real estate transactions and deal with anticipated economic, social, environmental and ethical issues in respect of commercial, industrial, residential, and recreational/resort properties. Material is presented from the perspective of owner and occupant, buyer and seller, developer and builder, majority and minority joint venture partner, lender and borrower, and the institutional and private user.

36. **Department**: Management

**Course Name**: Strategy Field Study - Arts and Media Administration (SB MGMT 6100 3.00)

Students interested in attaining the Graduate Diploma in Arts and Media Administration concurrently with the Schulich Graduate degree are required to pursue the strategy field study in the cultural sector organization. They examine the policy frameworks within which the arts and cultural industries operate. The course explores the dynamics of different perspectives on the human, social, political, cultural, environmental and economic resources involved in the production, distribution and support of the arts and cultural products and services.
37. Department: Management  
Course Name: Invention, Innovation and Investment in Life Sciences (SB HIMP 6160 3.00)  
This course delivers content related to social, environmental and strategic aspects of business planning, investment analysis and deal making in Life Sciences. Making money in a socially responsible industry such as healthcare and making strategic investment decisions in a multiple stakeholder environment to conclude win/lose business transactions are the unifying objectives of this course.

The course is intended for different groups involved in a life science company or working in the life sciences industry such as researchers, business development managers, corporate venture managers, those who are interested in the life science sector as consumers or investors, or for those who consider themselves entrepreneurs and deal makers for any business opportunity. The health care environment is complex, challenged with constrained resources, system restructuring, high demand, patient expectations, public accountabilities and emerging competitive “pay-for-performance” funding models. The course examines the application of effective management strategies to create high performance hospitals and advance their agendas.

The course equips the student with practical business planning knowledge, know-how and tools to manage investment and business growth in life science and other sectors through three major projects; the Stock Investment Contest, the Business Plan and the “Doing the Deal” simulation.

38. Department: Management  
Course Name: Commercialization in Pharma and Biotech (SB HIMP 6170 3.00)  
This course focuses on the rapidly growing biotechnology-genomics-biopharmaceuticals sector. This sector has received high attention due to modern technological marvels such as the Human Genome Project and technologies associated with the same. These technologies in turn promise to revolutionize modern medicine.

Remarkable advances in aforementioned sector means that MBA graduates wishing to pursue careers in this sector must be highly proficient in not just the scientific rationale behind a technology, but also the strategic, social, ethical, environmental and tactical aspects of decisions that must be considered at a business level while considering the triple-bottom line and ethics. The unique nature of this sector (e.g. the process and length of time taken for a drug to make it to market) will test business principles that have been learned in traditional MBA classes relating to strategic management, marketing and finance. This course will apply the principles and processes around clinical development, market approval and patient access issues to the successful commercialization and development of a biotechnology company in the Canadian market. Ethical and social implications throughout the development and commercialization process will also be considered.

39. Department: Management  
Course Name: Project Management (SB MGMT 6700 3.00)  
This course covers the strategic, organizational, social, environmental, ethical and operational aspects of managing projects. Today, project management techniques are used in virtually every industry ranging from the planning of a charitable fund raiser to the development of an e-commerce application. Students learn to manage the technical, behavioral, political and cultural aspects of temporary groups performing unique tasks. Topics covered include: defining deliverables, formulating project strategy, effective group organization and management, dynamically allocating resources,
managing without authority, and resolving conflict. Traditional cost and time management techniques are covered using contemporary software packages.

40. **Department: Management**  
**Course Name:** Management Consulting (SB MGMT 6960 3.00)  
This course provides students who are seeking a career in consulting with a thorough understanding of the function of management consulting and of the professional, interpersonal, analytical and diagnostic skills that are required of consultants. This advanced elective consolidates and builds on the concepts introduced in core courses, and applies them in the context of consultancy for profit and non-profit entities. This is a distinctively experimental course: actual consulting assignments including those about corporate social responsibility and environmental impact form a major component of it. The course provides real life consulting experience to students and exposes them to a variety of organizational issues such as market/product development, internal transformation issues, changing customer preferences, complex supply chain management (SCM) issues and financial and corporate strategy.

41. **Department: Organizational Behavior**  
**Course Name:** Organizational Analysis (SB OBIR 6020 3.00)  
This course focuses on the social impact based on firm design and management decisions and how they affect various stakeholders within the organization. Large complex organizations have become the dominant tool for defining, solving, and creating problems in social, environmental and economic areas. The result is that the functioning of these organizations has become increasingly important, and therefore the management of them as well. As a consequence, there is a demand for increased competence by managers to understand and be able to analyze organizations, their various stakeholders and the environment in which they operate.

The course has three objectives: to provide the student with a systematic understanding of the factors involved in the functioning of organizations; to examine the means by which management is exercised in organizations through people and technology; and to explore the management of organizations by critically analyzing organizational rationality, bureaucracy, authority and power, structure and efficiency, and the cultural aspects of technology, innovation and environmental change.

42. **Department: Organizational Behavior**  
**Course Name:** Management of Change (SB OBIR 6350 3.00)  
As the environment of many business and non-profit organizations becomes increasingly complex and unstable, it is imperative that top managers be able to create an environment for all social groups in and outside the organization of flexibility and adaptability in their operations. Organizations must be able to undertake major change without destructive side effects to be truly successful. This course surveys the major methods available to the modern manager for effectively managing the process of change and creating a general social environment in which needed changes are sought and welcomed throughout the organization. The course emphasizes case studies and the discussion of alternative change-management models and their social impact on various stakeholders to help students develop the relevant managerial skills of identifying the need for change, framing the social and organizational problems and ethical issues, influencing the decision process, and implementing the changes while incorporating the triple-bottom line with its social, economic and environmental components.
43. Department: Organizational Behavior  
**Course Name:** Employee Involvement: Strategies and Dilemmas (SB OBIR 6410 3.00)  
This course examines the social impact of management and the changes required in modern organizations, within unionized and non-unionized environments, to deal with today's turbulent economic environment and multiple social groups and stakeholders. In particular, the demands of new technology, changing individual lifestyles, expectations, environmental concerns, and the changing gender and ethnic composition of the workplace are considered. Alternative approaches for managers and change agents for dealing with the turbulent environments addressed in the course include quality of work life, organization development and action learning. Students are challenged to critique current organizational change strategies and to experiment with new approaches and value systems of social, environmental and economic impacts within the class itself. From the employer’s perspective the course reviews workplace management systems from a historical perspective, current workplace practices and various employee involvement initiatives such as the use of teams and empowerment programs and community involvement. From the employee’s perspective the course explores the meaning of work and employee expectations within the workplace and their effect on employee business and social involvement initiatives.

44. Department: Organizational Behavior  
**Course Name:** Negotiations (SB OBIR 6560 3.00)  
This course introduces students to negotiation situations to enable them to explore and consider the business, social and environmental factors while conducting the negotiation process. The objectives of the course are: to introduce students to negotiating theory, strategy and practice; enable students to evaluate the choices required in negotiations; provide students with a safe environment to negotiate; and explore the ethical dimensions of negotiating and its economic and social impact on all stakeholders. Students will learn the importance of preparation and planning, the impact of communication, perception, and cognitive biases, and how to find and use negotiation leverage. The course uses labor relations as a basis; however, other varieties of negotiating situations are explored as well.

45. Department: Organizational Behavior  
**Course Name:** The Art and Science of Leadership (SB OBIR 6650 3.00)  
This course examines the social, ethical and environmental implications of leadership. Leadership is perceived to be a matter of abiding importance, with the potential to make or break the success, even the survival, of an enterprise. This view is reflected in the ubiquitous laments about the dearth of good leaders, and in the ongoing search for gifted and courageous leaders for society, the government, the environment and business. The existence of a multi-million dollar industry devoted to leadership training and development is further evidence of the belief that good leadership is key to a successful society or enterprise and prosper environment.

46. Department: Production and Operations Management  
**Course Name:** Service Operations Management (SB OMIS 6955 3.00)  
This course is about designing and implementing service processes that respond effectively to customer requirements and are designed to maintain eco-effectiveness and clean environment. Service processes involve high customer interaction, information intensive products and the requirement for real-time responsiveness to a wide variety of customer demands. Designing, implementing and maintaining these processes in a competitive environment requires service-oriented organizations to have a new level of competence. This course concentrates on the problems and opportunities found in
large companies in rapidly changing industries such as financial services. Best practice and generic problems in service delivery can be found in many industries from manufacturing to retailing. Identifying effective strategies as well as specific techniques for process planning and control, risk management and project implementation are important in the development of managerial competence in service operations.

47. **Department:** Production and Operations Management  
**Course Name:** Operations Management (SB OMIS 5210 1.50)  
**Core Course**  
**Instructor(s):**

Operations management in both manufacturing and service organizations involves the coordination of complex and dynamic systems of people, technology and materials to achieve competitive objectives. The impact of alternative strategies for delivering quality products in a cost-effective and sustainable manner is examined. This includes popular inventory management philosophies such as `Total Quality Management', `Just-In-Time' inventory management and ISO 9000 Quality Standards in addition to ISO 14000 Environmental Management System. Product Life Cycle assessments are also studied in order to demonstrate to students the overall economic, social and/or environmental impact of a product/process from conception to disposal.

The challenge is to design processes that deliver superior goods and services with the greatest efficiency and highest quality while considering the triple bottom-line. This is done by carefully evaluating the strategies for structuring the organization of materials, process technology and various stakeholders. Ultimately operations management is about continuously improving existing processes and implementing new technology. This requires sound project planning and control skills while encompassing the social and environmental effects.

48. **Department:** Public and Non-profit Management  
**Course Name:** Public Policy & Public Management (SB PUBL 5500 3.00)  

This course describes the public policy development process and the public sector management environment within which economic and social policies are implemented. The roles and responsibilities of government officials are evolving rapidly as governments respond to the changing economic, social and political environment. In view of Canada's highly decentralized federal system of government, particular attention is given to the theory and practice of inter-governmental relations and their social, economic and environmental impact. This course provides the framework within which public policy is assessed and evaluated.

49. **Department:** Public and Non-profit Management  
**Course Name:** Canadian Public Law (SB PUBL 6200 3.00)  

The purpose of this course is to analyze the impact of judicial review on public policy and public administration in Canada. After a review of the current scholarly literature in Canadian constitutional and administrative law including human rights as well as social and business cultural issues, the course analyzes the role of judicial decisions in shaping the public policy environment and the norms of public administration. The course relies on real-life cases impacting triple-bottom line as of covering topics on social, environmental and economic issues keeping in view the ethical consideration involved.
50. **Department:** Public and Non-profit Management  
**Course Name:** Program Evaluation (SB PUBL 6800 3.00)  
This course provides students with the fundamental methodological tools necessary to evaluate the effectiveness of government social, economic and environment programs, and includes a review of the extensive literature in this area. Students learn techniques for evaluating assessments, and learn to develop research designs for formative evaluations, summative evaluations and needs studies. The course is built upon the research and evaluation of actual program being implemented by a public, non-governmental, private or charitable body in the Greater Toronto Area.

51. **Department:** Public and Non-profit Management  
**Course Name:** Organizational Issues in the Non-profit Sector (SB NMLP 6300 3.00)  
This course examines the core organizational elements involved in the leadership, development and measurement of organizational effectiveness in non-profit organizations, as well as other social enterprises, and the environments in which they function. There will be a focus on the study of non-profit organizations as centres of innovation and re-invention and the course will identify those organizational behaviours most closely aligned with these changes. This course complements other NMLP courses on Marketing, Finance, Complexity and Governance by examining non-profit organizations through the paradigm of an organizational review. Organizational reviews for nonprofits are differentiated by their attention to mission, values, culture, relationships, innovation, partnerships and evaluation of social, political and environmental impact. Additionally, this course will examine the macro- and micro-implications of staffing within the non-profit sector, examining issues of attraction, retention, and development of both a paid and volunteer labour force.

52. **Department:** Public and Non-profit Management  
**Course Name:** Change, Leadership and Complexity in the Non-profit Sector (SB NMLP 6500 3.00)  
In this course, students link theory and practice related to managing complex environments with multiple stakeholders from different social communities. Today’s challenges present difficulties in quantifying economic, social and environmental outcomes, and are subject to radical change in financial and organizational structure. Higher levels of uncertainty, blurring of the boundaries between sectors, increased demands for accountability and transparency, and calls for “entrepreneurial activities” while maintaining the highest ethical standards are just a few of the stresses on the leadership function. Leaders need to develop better conceptual and practical skills to address these changes at both the organizational and sectoral level.

53. **Department:** Public and Non-profit Management  
**Course Name:** Financial Management and Business Planning in the Nonprofit Sector (SB NMLP 6960 3.00)  
This course is directed at the student who is planning a career in senior management in a socially and/or environmentally oriented nonprofit sector organization, or the student who wants to learn the necessary skills to serve as a responsible, ethical and effective board member of profit organizations. The course focuses on the relationships between the CEO, senior functional managers, the Chief Financial Officer, the external auditor and the Treasurer of the Board in a variety of organizations. It also enables students to gain skills in the areas of corporate social responsibility and governance, social accounting practices, financial operations and social return on investments, planning processes of environment and social programs, organizational evaluation in nonprofit organizations, which strive to provide a more holistic form of performance measurement including evaluation of social and environment impact.
54. **Department:** Public and Non-profit Management  
**Course Name:** Cultural Policy (SB ARTM 6300 3.00)  
Drawing on a combination of academic, government and arts advocacy material, this course examines the historical development of policy and the formulation and execution of municipal, provincial and federal policies and their environmental and social impact in Canada. In particular, it focuses on current issues in arts and cultural policy as well as strategies for the future. Comparative analysis will examine other policy models with special reference to Europe, Britain and the United States and how these policies affect the environment of the cultural arts. Upon course completion, students should be able to: 1) identify major themes and issues in Canadian cultural policy in historical and contemporary contexts; 2) analyze approaches to cultural policy in relation to broader social and political frameworks at local, regional, national and international levels; and 3) critically discuss major theoretical approaches to cultural policy frameworks.

55. **Department:** Public and Non-profit Management  
**Course Name:** Issues in Arts and Cultural Management (SB ARTM 6301 3.00)  
This course focuses on the social impact of management decisions in the arts, media and cultural sector and serves an introduction to the cultural arts environment in Canada. It examines the policy frameworks within which the arts and cultural industries operate. The public sector and industry organizations dedicated to the development and sustainability of the sector are also covered. The course explores the dynamics of different perspectives on the human, social, political and economic resources involved in the production, distribution and support of the arts and cultural products and services in Canada. Students are exposed to and analyze a wide range of values, perspectives, environmental forces, and organization types that impact the dynamics of the arts and cultural sector in Canada.

56. **Department:** Public and Non-profit Management  
**Course Name:** Strategy Field Study - Non-profit Management and Leadership (SB MGMT 6100 3.00)  
Students interested in attaining the Graduate Diploma in Non-profit Management and Leadership concurrently with the Schulich Graduate degree are required to pursue the strategy field study with an approved non-profit organization. This course examines the core organizational elements involved in the leadership, development and measurement of organizational effectiveness in non-profit organizations, as well as other social enterprises, and the environments in which they function. Organizational reviews for nonprofits are differentiated by their attention to mission, values, culture, relationships, innovation, partnerships and evaluation of social, political and environmental impact. Additionally, this course will examine the macro- and micro-implications of staffing within the non-profit sector.

57. **Department:** Quantitative Methods  
**Course Name:** Quantitative Methods (SB OMIS 5120 1.50)  
This course is an introduction to the use of quantitative methods for business research, analysis, forecasting and optimization of business processes and socially oriented activities. The aim is to convey not only an understanding of these methods, but also to give an appreciation of their use in addressing actual economic, social and environmental problems, and to acquaint students with computer software necessary for implementing these methods. Applications constitute a key element of the course and students are introduced to various optimization and resource management problems.
that demonstrate the value of the tools and their applications. For instance, one of problems presented in past lectures, involves the determination of the optimal quantity of a perishable product (milk, bread, medications) to have in stock in order to maximize revenues, while at the same time minimizing inventory spoilage and/or shortage. Once the student has an understanding of the methodology, students can apply this knowledge towards resource management and organizational change at the operations level in many industries including fuel industry, healthcare, nanotechnology and many others with significant social and environmental impact.

58. **Department:** Strategy  
**Course Name:** Strategic Management (SB SGMT 6000 3.00)  
Stakeholder analysis, sustainable value creation, the social and environmental impact of management decisions, and the economic, ethical and social impact of management preferences affecting an organization’s success are integrated into the core elements of this course. The course focuses on strategic management, which is the process of choosing and defining purposes and objectives, formulating and implementing a viable and sustainable strategy. The course involves training and practice on analyzing the impact of internal micro-environment and external macro-environment in which a firm operates using strategic frameworks such as PEST (i.e, Political, Economic, Social and Technological), Porter’s model, SWOT (i.e., Strength, Weakness, Opportunity and Threat) and Porter’s value chain. It deals with the organization in its totality in the context of a broader stakeholder perspective. The course elaborates on the applicability of the strategic management discipline to a variety of sizes and types of organization. Topics taught include but are not limited to: 1) strategic thinking (readings include: Porter, Michael, “What is Strategy‖, Harvard Business Review), 2) corporate governance (readings include: “Business Ethics: Doing well by doing good,” The Economist), 3) global strategy and multinational corporations (case study: “Competing by the Book: Destination China‖), 4) strategic leadership and organizational change (Case: Richard Branson’s Virgin), and 5) strategic entrepreneurship (Case: GE Energy Management Initiative).

59. **Department:** Strategy  
**Course Name:** The Emergence of Global Management (SB SGMT 6720 3.00)  
This course builds on the notion that past experiences are an important resource for today’s managers. The course examines the strategies and structures of multinational enterprises in a long-term, historical perspective. It shows that owners and managers in earlier time periods had to address issues very similar to those faced by global companies today. These include, among others, the co-ordination of activities over distance and across cultural and national boundaries; managing social and environment impact of management decisions, technological innovation at workplace, local community development, corporate social responsibility, organizational culture, employee satisfaction, the need to find the right balance between the centralization and de-centralization of the organization; the relationship with political authorities in home and host countries.

60. **Department:** Strategy  
**Course Name:** Strategic Management of e-Business (SB SGMT 6960 3.00)  
This course explores the social and environmental impact and develops skills in identifying and analyzing issues relating to strategically positioning and managing businesses in the new environment of e-commerce and social networking. The course also explores the social and cultural impact of the evolving paradigm in the marketplace. It covers both the processes of strategy formulation, inter-relating market offerings, enabling technology and financial management, and strategy
implementation, adjusting the fit among organization structure, processes and systems for effective execution.

61. **Department**: Strategy  
**Course Name**: Board of Directors (SB SGMT 6150 3.00)  
This course focuses on the role of the board of directors in the operation of the business corporation. The composition, organization, operation and functions of boards are studied. The role of the board in determining the ethical conduct of firms, the social responsibilities of business and the input of business into the formation of public and environmental policies is given special attention. Boards in government-controlled and non-profit organizations are also examined.

62. **Department**: Strategy  
**Course Name**: Strategic Organizational Design (SB SGMT 6700 3.00)  
This course focuses on developing skills, tools and the knowledge base of strategic organizational design (analysis of strategy and organization, design and implementation). Emphasis is on managerial action for solving contemporary and complex work/family balance and design issues such as parent subsidiary relationships, global expansion, and innovation at workplace, employee training, community development, knowledge management, corporate social responsibility and environment management.

63. **Department**: Strategy  
**Course Name**: The Aboriginal Economic Development Project (SB MGMT 6950 3.00)  
Schulich offers an opportunity to participate in an annual Canadian Executive Services Organization (CESO) Aboriginal Services program. Students investigate the viability of an economic initiative linked to one of the Aboriginal Reserves in Canada. They also provide specific recommendations related to the initiative. The project usually involves producing a feasibility study or a business plan, as well as articulating an action plan to implement the recommendations. The final report is presented to the appropriate members of the Aboriginal Community under study and generally covers areas of environmental, social and communal concern.

64. **Department**: Strategy  
**Course Name**: International Business Strategy (SB IBUS 6430 3.00)  
This course examines the development of the international enterprise (large and small) in the global economy, focusing on the evolving strategies and structures and the similarities and differences between American, European, Japanese and Canadian enterprises. The course identifies domestic and international environmental, social, ethical and cultural constraints and their influence on the operating performance of the enterprises in different countries, both developed and developing. The adaptation of basic managerial functions to these different environmental constraints is considered. A few business cases study the importance of corporate social responsibility as a part of the global corporate governance

**H. Definitions (via businessdictionary.com)**
**Creative Thinking:** Looking at problems or situations from a fresh perspective that suggests unorthodox solutions (which may look unsettling at first). Creative thinking can be stimulated both by a freewheeling (unstructured) process such as brainstorming, and by a step by step (structured) process such as lateral thinking.

**Convergent Thinking:** Problem solving technique in which ideas from different fields or participants are brought together (synthesized) to find a single optimum solution to a clearly defined problem.

**Critical Thinking:** Objective examination of assumptions (adopted rules of thumb) underlying current beliefs to assess their correctness and legitimacy, and thus to validate or invalidate the beliefs.

**Divergent Thinking:** Idea generation technique (such as brainstorming) in which an idea is followed in several directions to lead to one or more new ideas, which in turn lead to still more ideas. In contrast to convergent thinking, (which aims at solving a specific problem) divergent thinking is creative, open-ended thinking aimed at generating fresh views and novel solutions.

**Lateral Thinking:** Idea generation and problem solving technique in which new concepts are created by looking at things in novel ways. Whereas the logical ('vertical') thinking carries a chosen idea forward, the sideways ('lateral') thinking provokes fresh ideas or changes the frame of reference. And, while vertical thinking tries to overcome problems by meeting them head-on, lateral thinking tries to bypass them through a radically different approach. The term was coined by the Maltese-born UK psychologist Dr. Edward de Bono in his 1970 book 'Lateral Thinking.' See also heuristics.

**Systems Thinking:** Practice of thinking that takes a holistic view of complex events or phenomenon, seemingly caused by myriad of isolated, independent, and usually unpredictable factors or forces. ST views all events and phenomenon as 'wholes' interacting according to systems principles in a few basic patterns called systems archetypes. These patterns underlie vastly different events and phenomenon such as diminishing returns from efforts, spread of contagious diseases, and fulfillment in personal relationships. ST stands in contrast to the analytic or mechanistic thinking that all phenomenon can be understood by reducing them to their ultimate elements. It recognizes that systems ('organized wholes') ranging from SOAP bubbles to galaxies, and ant colonies to nations, can be better understood only when their wholeness (identity and structural integrity) is maintained, thus permitting the study of the properties of the wholes instead of the properties of their components.

I. **Doctoral Degree Programs in Sustainability**

This resource lists interdisciplinary doctoral degree programs in sustainability. Discipline specific doctoral programs focused on sustainability are listed in the discipline specific resources.

Arizona State University - [Ph.D. in Sustainability](#)
Columbia University - [Ph.D. in Sustainable Development](#)
Prescott College - **Ph.D. in Sustainability Education**
Rochester Institute of Technology - **Ph.D. in Sustainability**
University of Alaska, Fairbanks - **Ph.D. in Natural Resources and Sustainability**
University of Rochester - **Ph.D. in Solar Energy**
University of Saskatchewan - **Ph.D. in Environment and Sustainability**
Walden University - **Ph.D. in Local Government Management for Sustainable Communities**

J. **Sustainability Consortium’s Collaborating Schools** (Staff & Affiliates n.d.)

Arizona State University  
Duke University  
Instituto Tecnológico Autónomo de México (ITAM)  
Massachusetts Institute of Technology  
Tec de Monterrey  
University of Arkansas  
University of California, Berkeley  
University of California, Santa Barbara  
University of Cambridge  
University of Massachusetts  
University of Michigan  
University of New Hampshire

K. **CleantechU.org Net Impact Chapters**

Duke University  
University of North Carolina – Chapel Hill  
Yale University  
The George Washington University  
Columbia University  
Brigham Young University  
University of Southern California

L. **Text of Rep. Bob Inglis (R-S.C.) Congressional Hearing on Climate Change**

INGLIS: I'm very excited to be here Mr. Chairman, because this is on the record. And it's a wonderful thing about Congressional hearings -- they're on the record. Kim Beasley (SP?) who's Australia's ambassador to the United States tells me that when he runs into a climate skeptic, he says to them, "Make sure to say that very publicly, because I want our grandchildren to read what you said and what I said. And so, we're on the record, and our grandchildren, or great-grandchildren, are going to read. And so some are here suggesting to those children that here's a deal: Your child is sick -- this is what Tom Friedman gave me this great analogy yesterday -- Your child is sick. 98 doctors say treat him this way. Two say no, this other way is the way to go. I'll go with the two. You're taking a big risk with those kids. Because 98 of the doctors say, "Do this thing," two say, "Do the other." So, it's on the record.

And we're here with important decision to be made. And I would also suggest to my Free Enterprise colleagues -- especially conservatives here -- whether you think it's all a bunch of hooey, what we've talked about in this
committee, the Chinese don’t. And they plan on eating our lunch in this next century. They plan on innovating around these problems, and selling to us, and the rest of the world, the technology that'll lead the 21st century. So we may just press the pause button here for several years, but China is pressing the fast-forward button. And as a result, if we wake up in several years and we say, "geez, this didn't work very well for us. The two doctors didn't turn out to be so right. 98 might have been the ones to listen to." then what we'll find is we're way behind those Chinese folks. 'Cuz you know, if you got a certain number of geniuses in the population -- if you're one in a million in China, there's 1300 of you. And you know what?

They plan on leading the future. So whether you -- if you're a free enterprise conservative here -- just think: it's a bunch of hooey, this science is a bunch of hooey. But if you miss the commercial opportunity, you've really missed something. And so, I think it's great to be here on the record. I think it's great to see the opportunity we've got ahead of us. And, I also -- since this is sort of a swan song for me and Mr. Barrett I'd encourage scientists who are listening out there to get ready for the hearings that are coming up in the next Congress. Those will be difficult hearings for climate scientists. But, I would encourage you to welcome those as fabulous opportunities to teach.
“We can change the world, rearrange the world, it’s dying...to get better.”

-Crosby, Stills, Nash & Young
Works Cited


Hirshberg, Gary. "*Our Time is Now.*" Ann Arbor, Michigan, October ???, 2010.


