



## COURSE INFORMATION

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**Course Number:** MGT 920

**Course Title:** Natural Capital: Risks and Opportunities in Global Resource Systems

**Term and Year:** Spring 2017

**Synchronous Class Meeting:** T/Th at 08:30 – 09:50 AM (Eastern United States Time Zone)

**Course Support:** Sarah McLellan

## CONTACT INFORMATION

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Professor(s)	TA(s)
<b>Name:</b> Todd Cort <b>Office Location:</b> Yale School of Management <b>Telephone Number:</b> +1 203 436 9651 <b>E-mail Address:</b> todd.cort@yale.edu <b>Office Hours:</b> By appointment	<b>Name:</b> Nikki Springer <b>E-mail Address:</b> nikki.springer@yale.edu
<b>Review Sessions:</b> <i>On Request</i>	

## TEXTBOOKS AND RECOMMENDED/REQUIRED READINGS

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**Textbook(s):** *None*

**Required Readings:** *See Class Website*

**Recommended Readings:** *See Class Website*

## COURSE DESCRIPTION AND OBJECTIVES

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### Course Description:

Natural resource constraints affect most, if not all, functional areas of the modern corporation. Many large companies are taking proactive approaches to managing these risks and capturing the opportunities they create. As such, they are increasingly expecting their employees to have a basic familiarity with the environmental and social, as well as the economic, megatrends affecting the resource systems on which they depend.

### Course Objectives:

This is a survey course designed to introduce business students to fundamental science and business dilemmas arising from constrained natural resources. By the end of the course, we expect that students will:

- Ask informed questions about the economic, social and environmental risks facing continued access to the critical natural resources on which your business depends
- Pursue business solutions to addressing those risks
- Gain experience working in global, cross-cultural teams

**Course structure:**

This course is built around six global resource systems – materials, energy, food, water, climate and natural areas. It provides a vehicle for students to explore the ways in which businesses are dependent on these resources, as well as the risks facing continued access to them and the accompanying opportunities for innovation. It is designed for graduate-level business students with no prior background in sustainability or natural resources.

This is the fourth year of an online course being offered by the Yale School of Management (SOM) across the Global Network for Advanced Management (GNAM). Class interactions will take place virtually on Yale's online course platform and the language of instruction and interaction will be English. Class materials – text, reports, videos, etc. – will also be posted to the online platform. Students are expected to have completed the equivalent of the traditional core curriculum at their business school, or to have taken prior coursework in finance, marketing, operations, business and society or other business-related subjects.

The course will devote two weeks to each resource system:

- Week 1: An overview of how the resource system works, including the economic, environmental and social risks facing its continued operation, as well as the business opportunities created;
- Week 2: Analysis of a business dilemma facing a company whose operations are dependent upon that resource system.

This is an experimental course and the business case studies that we use are updated continuously. Following are the case study dilemmas that we expect to use for the course, but any of these may change before the beginning of class.

- Materials: How should the clothing retailer **Patagonia** address potentially toxic chemical compounds in its waterproof garments?
- Given market and other external pressures to diversify its fuels base, should and if so how might **Pemex** (the Mexican national oil company) best expand its liquefied natural gas operations?
- Given the concerns of large customers in Europe (such as Unilever and Nestle) and others about the impacts of expanded agricultural production on tropical rain forests, how should **Wilmar** site and operate their palm oil plantations in Indonesia?
- Since water supplies are best managed at the watershed level, how should **Coca-Cola** decide how much to invest in creating new partnerships with external organizations for doing so in the US?
- Since the impacts of the more variable and intense weather patterns predicted to accompany climate change will fall heavily on farmers, how should **Santam** (the oldest property and casualty insurer in South Africa) reflect those predictions, if at all, in its agricultural insurance offerings?
- Is there an economically viable model for private capital to purchase land in **Montana** for the purposes of conservation?

The dilemmas posed, both by the companies and across the wider resource systems, have yet to be solved. Students will be asked to draw on the fundamental business tools to which they have been exposed in their studies – finance, strategy, marketing, operations and others – to develop new and innovative approaches to addressing these dilemmas, as well as sustaining access to the resources and services on which the global economy and these companies depend.

As we continue to pilot new technologies and teaching methodologies as well as cooperative models across GNAM schools, students are expected to be flexible and willing to engage in an experimental (sometimes imperfect) experience. Ongoing feedback will be an essential part of the class, giving students in this fourth cohort the opportunity to continue to shape the course and related efforts for the future.

### **Course Deliverables**

- High level analyses of the strengths, weaknesses and opportunities facing each of the six resource systems – by each student for each system for which they are not conducting a group analysis of the business dilemma.
- Suggested resolutions to the business dilemmas posed – each student will be required to participate in group analyses and presentations for two of the cases, as well as to provide peer evaluations of other group's products for the other four cases.
- Evaluations and reflections on this experimental course, both how it may inform the work the student hopes to do in the future, as well as ways the course might be improved.

### **GLOBAL TEAMS, GLOBAL INSTRUCTION**

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The Natural Capital course is a 100% on-line class using a mixture of technologies and modes of interaction. The course centers around the bi-weekly synchronous class session that occurs Tuesday and Thursday at 08:30 – 09:50 AM Eastern US time. The course also utilizes an on-line 'textbook' with readings, videos and access to social media and interactive platforms for students.

This course is designed to honor and take advantage of global presence. The case studies are international in nature. Students will deliver case study solutions in international teams. We also recruit scholars and faculty from around the world to contribute and teach in the course.

### **About the Professor**

Todd Cort is a Faculty member at the Yale School of Management and Yale School of Forestry and Environmental Studies. He also serves as the Faculty Co-Director for the Yale Center for Business and the Environment (CBEY). He holds a Ph.D. in Civil and Environmental Engineering, Master's and Bachelor's degrees in biochemistry and a Professional Engineer's license in California. Dr. Cort previously served as Director of Sustainability Advisory services for TUV Rheinland and Det Norske Veritas where he consulted on sustainability matters including metrics, risk management and auditing practices.

Dr. Cort currently works at the intersection of sustainability and corporate finance. Over the course of 15+ years, in consulting and academia, he has applied a scientific and economic lens to corporate social and environmental responsibility (or sustainability) in order to identify the tools, mechanisms, metrics and indicators that create the greatest value for investors, businesses and society.

Businesses and investors today face a particular challenge when it comes to sustainability and corporate responsibility. We know that awareness and performance in sustainability writ large correlates to better financial performance, but we cannot yet tell which aspects of sustainability drive this improvement. Meanwhile, the sustainability industry is moving quickly toward higher levels of mandatory reporting of sustainability metrics in various forms across the globe in order to provide comparable metrics within

and across sectors. Comparable metrics are critical to the policy decisions that need to be made in order to address global sustainability challenges. To date, the selection of the 'best metrics' have been driven in large part through consensus building across stakeholder groups.

Dr. Cort's research into metrics is based on two premises: 1) that businesses will voluntarily adopt metrics that can be shown to drive improved financial performance and 2) that proof of this relationship must stem from scientific and economic analysis, not only consensus opinion. Therefore, Dr. Cort is testing the relationship between sustainability metrics and financial performance through a variety of causal pathways (such as risk management, reputation protection, license to operate, regulatory resilience, talent and recruiting, etc).

Dr. Cort teaches classes to graduate level students in:

- metrics of sustainability
- corporate responsibility in oil and gas,
- sustainable wine, sustainability and entrepreneurship, and
- corporate responsibility in wine and agriculture.

## **COURSE REQUIREMENTS AND SPECIFIC GRADING POLICY**

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Course Assignments are listed on the class website. Descriptions of 'what makes a good deliverable' are also posted on the course website. Assignments are a mixture of deliverables and evaluations. A total of 74 points are assigned for the course – 40 points for deliverables and 34 points for evaluations

### ***Deliverables***

#### **1) Case Study Deliverable**

Each student will be assigned into a group to deliver two case studies – one in the first half of the course and one in the second half. Groups will change for each of the two case studies. Full descriptions of the case studies and deliverables are provided on the course website.

#### **2) SWO Analyses**

When a student is not part of a case study team, they will be expected to complete a Strength, Weakness and Opportunity (SWO) Analysis.

#### **EXAMPLE DELIVERABLE SCHEDULE**

For example, John Doe is a student in the course. John is assigned to deliver a case study solution for the Energy Module and also for the Natural Areas Module. Therefore, John's assignment schedule is:

- **Materials Module: John delivers SWO Analysis individually (4 points)**
- **Energy Module: John delivers case study with assigned group (12 points)**
- **Food Module: John delivers SWO Analysis individually (4 points)**
- **Water Module: John delivers SWO Analysis individually (4 points)**
- **Climate Module: John delivers SWO Analysis individually (4 points)**
- **Natural Areas Module: John delivers case study with a new assigned group (12 points)**

Total points for deliverables: 40 points

### **Evaluations**

- 1) Tell us about yourself (1 point)
- 2) Team Evaluations: Whenever a student is not presenting a case study, they will provide feedback and evaluation of the presenting groups (3 points x 4 modules = 12 points)
- 3) Mid-term Course Evaluation (3 points)
- 4) Team evaluations of your case study groups (5 points x 2 Modules = 10 points)
- 5) Reflections on how you might use this course in your career (5 points)
- 6) Final Course Evaluation (3 points)

Total points for evaluations: 34 points

### **Grading Criteria**

This course covers topic areas that are subjective in nature and continuously evolving, therefore, the major skills to be developed in this course are around reasoning and application of tools to intractable problems faced by businesses and society. The assignments are therefore graded based on the following characteristics:

- 1) Recognition of the critical elements and factors impacting business strategy
- 2) Knowledge of the relevant tools that can be brought to bear against the problem
- 3) Critical reasoning and the ability to balance competing, but frequently incomparable priorities
- 4) Development of argument to support conclusions and recommendations including clear statements of reasoning, compelling argument, appropriate use of evidence and succinct presentation

### **Grades**

There are five grades at Yale SOM: High Honors, Honors, Proficient, Pass, and Fail. The grade distribution that faculty use, and the policy with respect to the reporting of grades on official transcripts, are described below.

HH: High Honors. Up to top 10 percent of class. Reported on transcript.

H: Honors. Next 25 percent. Reported on transcript.

PR: Proficient. Next 55 percent. Not reported on transcript.

P: Pass. Lowest 10 percent in core courses; guideline of 5 percent in electives. Not reported on transcript.

F: Fail. An absolute standard; no minimum requirement. To the extent it is used, the F grade counts toward the 10 percent Pass category. Not reported on transcript.\*

Once grades are officially recorded, they may not be changed except in cases in which a mathematical error has been made in computing the grade or a clerical error has been made in recording it. Students seeking correction to a grading error must contact the instructor within two weeks (ten working days) from the receipt of the grade.

\*F grades in core courses require remediation. The failed core course is not reflected on the official transcript until remediated. Elective courses with F grades are not reflected on the official transcript. Students must replace failed electives with other electives to meet total credit requirements for graduation.

Grades for students outside of Yale SOM are posted as percentages and converted to the grading system of the host institution.

## **YALE SOM HONOR CODE**

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### **Guiding Principles**

Honesty is fundamental to the profession and practice of management. It is therefore the bedrock premise of management education at Yale. To the community of students, faculty, and staff of the Yale School of Management, honesty and integrity build the trust essential to a free and lively exchange of ideas.

- The Yale SOM Honor Code is intended to foster the School's exceptional learning environment and to support conduct that will distinguish the faculty, staff, and students in their lives as managers, at school, at school-related functions, and in the larger management community. The Honor Code will be referred to as the "Code" hereafter.
- The Honor Committee has jurisdiction over all Code violations including matters of academic dishonesty and egregious violations of the social and professional norms of behavior.

### **Academic Integrity**

The Yale SOM community, including faculty, staff, and students, supports the highest standards of academic integrity. All academic work affords an unparalleled opportunity to put forward new and innovative ideas; at SOM, we aspire to always acknowledge the ideas upon which new solutions are based.

- When working on any assignment with a team, students must clarify the expectations for each member of the team.
- Faculty will provide clear guidelines for students on the parameters of any group work, as well as guidelines for proper citation.
- A student will contact the professor for clarification if there is a question about the way in which the group work is to be completed.
- Students are encouraged to consult print resources as well as online resources, available on the SOM portal, concerning proper citation.

### **Community Standards**

A hallmark of the Yale SOM community is its inclusive nature, which respects the diverse backgrounds and views of its members. SOM faculty, students, and alumni aspire to standards of conduct while at Yale, and as they function in the larger management community, that will further distinguish SOM as a center of integrity and fair dealing.

- Students must uphold, among themselves, the highest standards of professional behavior.
- Students must strictly adhere to ethical guidelines during the job search—with interviewers, prospective employers, and their student colleagues.
- Students must remember that they represent the School as they take part in activities in the University, New Haven, and the larger management community.
- Standards of individual responsibility in the job search, and in the use of School and University information technology resources, are detailed under Policies and Guidelines of the Career Development Office and Policies on the Use of Information Technology Facilities in this chapter.

### Important Note on Plagiarism

Deliverables for this course should be your own work. We are interested in your own ideas and require all students to follow Yale University's plagiarism policy for graduate schools which can be found at <http://www.yale.edu/graduateschool/academics/ethics.html>

The text reads as follows:

"The failure, whether intentional or not, to cite one's sources properly is referred to as plagiarism. Webster's Ninth New Collegiate Dictionary defines the act of plagiarizing as follows: **Plagiarize** *vb*: to steal and pass off (the ideas or words of another) as one's own : use (a created production) without crediting the source ~ *vi* : to commit literary theft : present as new and original an idea or product derived from an existing source.

We are required to cite any instance in which we have either directly quoted or indirectly drawn upon and benefited from the works and ideas of others. This requirement applies equally to all of the work that we do, whether a paper or an exam for a course, a presentation in class or at a conference, a manuscript for publication, or any other scholarly work. Failing to credit the influence of existing research and scholarship on one's own work is tantamount to theft. It is particularly important to note that the Internet is subject to the same rules that govern other sources. It is not somehow free or different from any other source that must be cited if used. Plagiarism, whether deliberate or through negligence or ignorance, is a serious violation of conduct at both the College and the Graduate School, and, indeed, in any environment that values integrity, respect and fairness. Our commitment to creative scholarly work carries with it explicit and implicit commitments to documenting the sources of existing ideas and statements that appear in our own work. By planning ahead, being honest, and exercising patience, plagiarism is easy to avoid.

It is imperative that all of us learn and apply the standards for citation in our disciplines because the written form for noting citations varies from one field of study to the next. In short, while the obligation to cite all sources we have used is universal, the forms of citation vary widely. In addition to the resources available through the Graduate School, Yale faculty members can help you determine the current protocols governing scholarly references in each discipline."

## GENERAL STATEMENTS

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### Attendance

Students are expected to attend classes regularly, be on time, and be prepared to contribute to class discussion. We recognize that there are times when circumstances may cause a student to miss class. If these absences are due to religious observance, unplanned hospitalization, extended illness, or a personal or family emergency that directly affects the student or an immediate family member, the absence would be considered excused. Students will be informed about whether their absence is excused or unexcused by a program administrator. Whenever students are unable to attend class, they must inform the instructors. If the circumstances make advance notice impossible, an e-mail as soon as possible after the missed class is the next best alternative. The student must make arrangements with a classmate to get notes and copies of class handouts, and to complete all missed work.

## **DETAILED OUTLINE OF CLASS SESSIONS**

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In order to accommodate time zones across the GNAM schools, the synchronous on-line classroom sessions will be offered Tuesdays and Thursdays from 8:30am to 09:50am, Eastern United States Time, starting on Monday January 24th. Actual on-line interactions will consist of:

- Same-time video discussions with faculty, TAs and guests;
- Moderated on-line discussion threads; group sessions – both video and on-line; and
- Other methods as fit the class best.

We will endeavor to finish speaking by 09:30 to allow time for additional questions and discussion and to allow groups to meet directly following class (09:30 – 09:50am).

**Please note the time change in late march when the class resumes after the mid-semester break due to the US move to Summer time.**

***The current schedule is as follows:***

Synchronous sessions for the entire class will be held on Tuesday and Thursday mornings from 08:30AM – 09:30AM New York time.

Dedicated time for synchronous interaction of group members in global teams will be available immediately after the full class sessions from 09:30AM to 09:50AM New York time.

Session 1: Tuesday January 24 – Introduction to class goals and structure

Session 2: Thursday January 26 – Introduction to the Materials System

Session 3: Tuesday January 31 – Discussion of students' analysis of Materials System

Session 4: Thursday February 2 – Introduction to Patagonia Business Dilemma (pending confirmation)

Session 5: Tuesday February 7 – Students' proposed solutions to the business dilemma

Session 6: Thursday February 9 – Introduction to the Energy System, with the participation of Eirik Waerness of Statoil (pending confirmation)

Session 7: Tuesday February 14 – Discussion of students’ analysis of Energy System

Session 8: Thursday February 16 – Introduction to Pemex’s business dilemma  
With the participation of guests from Pemex/EGADE (pending confirmation)

Session 9: Tuesday February 21 – Students’ proposed solutions to the business dilemma  
With the participation of guests from Pemex/EGADE (pending confirmation)

Session 10: Thursday February 23 – Introduction to the food system, with participation from Mark Bomford, Yale Sustainable food Program (pending confirmation)

Session 11: Tuesday February 28 – Discussion of students’ analysis of the food system

Session 12: Thursday March 2 – Introduction to the palm oil business dilemma  
With the participation of Jaan Elias, Director Case Writing, Yale School of Management (pending confirmation)

Session 13: Tuesday March 7 – Students’ proposed solutions to the palm oil business dilemma

### **Yale SOM Spring Break (March 8 through March 27)**

**Please note that on Sunday March 12, 2017, US time will move forward one hour for “Daylight Savings Time”. If your country’s time does not also change before the class resumes later in March, the starting time for the class will effectively be moved one hour earlier.**

Session 14: Tuesday March 28 – Discussion of platforms for business transformation, with participation from the World Bank, World Economic Forum and/or World Business Council for Sustainable Development

Session 15: Thursday March 30 – Introduction to the water system, with participation of Juan-Victor Seminario of WaterAid America (pending confirmation)

Session 16: Tuesday April 4 – Discussion of students’ analysis of the water system

Session 17: Thursday April 6 – Introduction to water business dilemma

Session 18: Tuesday April 11 - Students’ proposed solutions to the water business dilemma

Session 19: Thursday April 13 – Introduction to the climate system, with participation of Peter Boyd of the Climate War Room (pending confirmation)

Session 20: Tuesday April 18 – Discussion of student’s analysis of the climate system

Session 21: Thursday April 20 – Introduction to the business dilemma facing Santam, with participation from Vanessa Otto-Mentz of Santam (pending confirmation)

Session 22: Tuesday April 25 – Student’s proposed solutions to the business dilemma facing Santam, with participation from Vanessa Otto-Mentz of Santam (pending confirmation)

Session 23: Thursday April 27 – Introduction to the natural areas system, with participation from Bradford Gentry, Associate Dean and Professor in the Practice, Yale School of Forestry and Environmental Studies (pending confirmation)

Session 24: Tuesday May 2 – Discussion of student’s analysis of the Natural Areas System

Session 25: Thursday May 4 – Introduction to the Montana Ranch conservation finance dilemma

Session 26: Tuesday May 9 – Student’s proposed solutions to Montana Ranch dilemma

*The instructor reserves the right to modify and/or change the course syllabus as needed during the course.*