



# **Systems Practicum: UVA in Sweden**

## **SYS 2054/3054 Systems Case Studies**

May Term 2019: May 11 – May 30, 2020

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### ***I. Course Description***

The course rests at the intersection of systems engineering, environmental management, business and entrepreneurship. Every dimensions of this program channels through real projects we do with Swedish clients. The primary focus is on systems-level environmental strategy, management, and policy in industry. A core area of emphasis will be developing deeper intercultural competence. In addition, students will gain experience and skills with identifying system goals, formulating requirements and performance metrics, creating and evaluating alternative solutions, and presenting recommendations to clients.



## **II. Goals and Learning Objectives**

The primary goal of the class is to develop your professional *intercultural competencies*, which we define as (1) your appreciation of the cultural differences in business and engineering practices in different parts of the world, plus (2) your ability to successfully cope with these differences.

### **1. Appreciation of cultural differences.**

After taking this course, students will be able to:

- Explain broad cultural differences between Sweden and the US. You will be living in Lund and experience everyday Swedish life: going the grocery store, tasting the Swedish food, meeting locals, etc.
- Explain the differences in business and engineering practices between Sweden and US by interacting with clients and analyzing their needs; demonstrate this understanding of differences in client interactions, formal reports and presentations, class discussions, and blog entries.
- Demonstrate an ability to adapt to unfamiliar situations in both professional and social situations.
- Explain the fundamentals of sustainability and how sustainability is viewed and practiced in Sweden

### **2. Ability to successfully cope with cultural differences in a professional setting.**

After taking this course, students will be able to:

- Identify the specific needs of your foreign clients through a variety of methods such as interviews, root cause analysis and direct observation.
- Identify and develop solutions to your client's challenges that fit their specific needs and that are sensitive to the specifics of the business culture and practices
- Present the solutions to your clients, in both writing and in an oral briefing, overcoming communication barriers

Students shall gain a fuller understanding of the cultural differences inherent to working within an international context, while expanding their knowledge of environmental management and systems engineering concepts through a project with a client in Lund, Sweden.

## **III. Relevance of Location**

This program seeks to educate students how to integrate the principles and values of sustainable development in engineering and business in real life conditions. Environmental issues are intertwined tightly with culture in Sweden and Scandinavia. Hence, interactions between students and employees at the Swedish organizations (also referred as 'clients') are of primary importance for the success of the program. It is through these interactions that the students are expected to gain value that they otherwise cannot gain in a classroom on grounds at UVa.

Even though the time in Sweden is brief, ample opportunities exist in Lund and surrounding areas to seek out engagement with Swedish culture; opportunities include direct interactions with teachers at IIIIEE and clients, study visits as well as cultural excursions, shopping at grocery stores, going to the laundry mat, going out with friends to have dinner or for dancing, and many more.

## IV. Tentative Itinerary

The following schedule outlines a tentative schedule for the program.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
May 10 Depart US	11 Arrive Lund	12	13	14	15	16 Bornholm!
<p style="text-align: center;">Week 1:</p> <p style="text-align: center;">Heavier on sustainability topics/speakers Each team meets their clients and has initial meeting where they can ask questions Teams also will have some time to work on their projects.</p>						
17 Bornholm	18	19	20	21	22	23 Free Day
<p style="text-align: center;">Week 2:</p> <p style="text-align: center;">Some sustainability topics/speakers, but weighted towards earlier in the week Includes guided field trip to SYSAV, Malmö and group dinner in Malmö Teams have lots of time to work on projects at IIIEE/to schedule meetings with their clients as needed THURSDAY IS NATIONAL HOLIDAY – MAY ONLY WORK HALF DAY? Outline due on Tuesday Draft Report Due Friday at 5:00</p>						
24 Free Day	25 Report feedback + keep working on projects	26 Keep on working!	27 Presentation Prep & presentation slides Due AM  Submit report prior to 5 pm.	28 Preentation prep.  Dry-run presentations PM	29 Client presentations in AM  Bosjokloster afternoon + dinner	30 Depart Lund/Arrive U.S.

## V. Teaching Methods – PRACTICUM!

The primary teaching tool for this course will be a *practicum* focusing on an actual problem experienced by a real-world company. *Practica* are learning experiences that involve the supervised application of previously studied concepts and theory. In other words, the focus of this class is on *learning by doing*.

The role of practicum faculty is also different. Rather than lecturing, practicum faculty will *coach*. Their main role is to supervise progress, offer high-level guidance, and to help teams overcome obstacles.

To be able to execute the projects, students will need to have a basic understanding of core topics on sustainability, environmental management and policy. As such, the faculty will lead a “classroom experience” a few times each week on these topics. The idea is to learn topics that provide context and direct relevance to the client projects – students will be acquiring background knowledge needed them for their projects.

## **VI. Pre-Departure Meetings**

A total of roughly six hours will be committed to **mandatory** pre-departure meetings. Topics to be discussed include logistics, current events in Sweden and readings on Swedish culture, business analysis and system engineering methodologies, the formation of teams, and preparation for project. These meetings will also provide the opportunity for the students to get to know each other. They will also give the program directors the chance to assess the abilities of the individuals which will help in developing teams.

## **VII. Grading and Assignments**

Faculty will assess the overall quality of the work of the team first. This will be based on both the impact on the client and the process used by the team. Faculty will then use their judgment to assign individual grades – where the team grade is used as a baseline. A peer evaluation will be completed by each student at the end of the program

A key difference between this and most classes students are accustomed to is that “doing the work” does not equate to an A.

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| <b>A</b> | <b>Demonstrates work of a competent professional.</b> <ul style="list-style-type: none"><li>• Does all that a B student does, but demonstrates an ability to advance the project... to not just do work, but to know what work should be done.</li><li>• Has clear connections between her/his contributions and the business value delivered to the client.</li><li>• There are many ways to exercise leadership... and an A student finds meaningful ways to lead.</li><li>• Work represents someone who is driven by high internal standards of quality, not driven by trying to meet faculty members’ standards of quality.</li></ul> |
| <b>B</b> | <b>Demonstrates work of a competent student.</b> <ul style="list-style-type: none"><li>• Does very solid work, but relies on others (e.g., other team members, a faculty advisor) to figure out what s/he should be doing and to set the bar for quality.</li><li>• A “B” can be earned by a student who is conscientious, diligent, and hard-working.</li></ul>  |

**Grades below a B can be earned if work is below the standards outlined for a B.**

**Being a good “citizen of the program” and behavior on the program will be factored into grades.** The degree of impact can vary widely, depending on the significance of achievements or the severity of problems. Showing up on time to group events, participating in discussions, being prepared and alert for client meetings, and generally doing things that create a positive program environment are on the plus side of this evaluation.

The negative side not only includes the opposite of the prior list, but also could include engaging in any undesirable or illegal behavior.

**A. Blog**

We will keep an online blog for the course. Each day, a couple of students will be assigned to write and post the blog entry for that day. The entry consists of a summary of what happened during the day, covering both class work and social activities, plus a couple of pictures taken during key activities. The blog will be public. It is intended to be a means for you to reflect and learn, and also a means for your family and friends to stay connected.

**B. Group Discussions**

One to two times each week, we will spend 30-ish minutes discussing your experiences. It could be something that confuses you, something that frustrates you, or something that you feel really highlights something unique about Swedish culture. Most days will be open-ended, but some days we may ask you to prepare something related to a specific topic.

**C. Client Presentation**

Each team is required to offer a final presentation to their Argentine client. The suggested content of the presentation is outlined in a separate document that will be shared during the program.

**D. Executive Summary Style Report**

The executive summary describes succinctly your solution. As a guideline, it should be 1200-1500 words long, plus any exhibits/appendices that you feel are useful to fully understand your work or to implement your recommendation (this might include software developed, user manuals, tables with results, etc.). Examples and instructions will be shared during the program.

## ***VIII. Honor***

The University of Virginia relies upon and cherishes its community of trust. We endorse and uphold the University's Honor principle that students will not lie, cheat, or steal, nor shall they tolerate those who do. We recognize that even one honor infraction can destroy an exemplary reputation that took years to build. Acting in a manner consistent with the principles of honor benefits every member of the UVA community.

## ***IX. Inclusivity and Accessibility***

I am committed to creating a course that is inclusive in its design. If you encounter barriers, please let me know immediately so we can determine if there is a design adjustment that can be made. I am happy to consider creative solutions as long as they do not compromise the intent of the program. If you are a student with a disability, or think you may have a disability, you are also welcome to initiate this conversation with the Student Disability Access Center (SDAC). If you have already been approved for accommodations through SDAC, please follow their process + meet with me so we can develop an implementation plan together.

**Walking and bicycle riding:** this program requires significant walking and bicycle riding is highly encouraged as a means of transport so that you can experience Lund as a local does. We will provide everyone with a bike as part of the program. Talk with me if you have any concerns about biking.

**Deadlines, Extra Time:** The main deliverables are a report and presentation. There is no way to give extra time or extend deadlines for either of these and keep with the program objectives.

**Being Late or Missing Program Activities:** We are working in a professional setting on this program. Students are expected to be on time and alert/focused on every workday and when meeting with clients. Modifying these expectations would undermine the objectives of the program.

**Work quantity/late nights:** This course requires a significant amount of work and could, at times, require working late to meet deadlines (as in the real world).