SUFFOLK UNIVERSITY
MADRID CAMPUS

Madrid Campus Programs

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CI 141 M1 - SCIENCE = CREATIVITY
Spring 2017

Instructor Information:
Instructor: Carl-Gustaf Pierre Saluste, Ph.D.
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Course Information:
Meetings: Tuesdays and Thursdays 10:45-12:15, Room 3.
Catalog Description: This course is focusing on the creative process by introducing students to creative practice as a disciplined approach to problem solving and innovation requiring research, persistence and grit. Students will be encouraged to synthesize existing ideas, images, concepts, and skill sets in original ways, embrace ambiguity and support divergent thinking and risk taking.
Instructor's Additional Description: The aim of this course is to develop creative thinking strategies around science topics. Although the approach is based on science, the course is suitable for non-science majors too!
Prerequisites: None
Credit Hours: 3 credits

This course follows the US Federal Government's Credit Hour definition: "An amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutional established equivalence that reasonably approximates no less than:

(1) One hour of classroom or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or
(2) At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours."

For full up-to-date statement:
http://cihe.neasc.org/downloads/POLICIES/Pp111_PolicyOnCreditsAndDegrees.pdf

A more detailed breakdown of the student engagement is given below:

Assignment	Engagement Estimate	Engagement Hours
Course readings	100 pages x 8 min/page	10
Review of PPt-presentations	10 PPt x 30 min / PPt	6
Preparation of practical activities	20 h preparation	20
Midterm exam	8 h preparation	8
Final exam	15 h preparation	15
Final paper	15 h preparation	15
Class attendance	3 h x 15 weeks	45
ESTIMATED TOTAL		**119 HOURS**

Textbook/Course Materials:

You will be given handouts throughout the course. Some material may be posted on Blackboard, or sent to you by email. You must have a notebook for this course, where you write down your thoughts and ideas. It should also be used for any written assignment you may have.

Course Goals & Learning Objectives:

Upon successful completion of this course, students will know/understand:	Upon successful completion of this course, students will be able to:	How the student will be assessed on these learning outcomes
• How to recognize and foster creative thinking to solve problems. • The purpose of this course • How the human brain works (in a schematic way). • Where the main parts of the brain are located.	• Locate different parts of the brain on blind maps. • Set up a brain gym.	• Quiz • In-class exercise
• How to approach problem solving reiteratively through testing and critiquing until feasible solutions are found	• See connections between different concepts, e.g. storage furniture and shopping cart. Come up with an idea! • Gain confidence in the use of abstract connections to work out innovative ideas and approaches. • Present the idea to an audience. • Engage in constructive peer-reviewing. • Recognize and foster creative thinking to solve problems.	• Presentations of group work • Peer assessment
• How to identify challenges as opportunities in order to develop innovative ideas and outcomes. • How to improve the ability of lateral thinking. • How to see positive/negative aspects in topics that would normally have the opposite connotation. • How to make use of critical thinking.	• Be able to look at a topic from different points of view. • Recognize that topics with a clear standard connotation can be viewed in a different way, e.g. why can poverty be good? • See the difference between critical and creative thinking, and value the use of both!	• Performance on reasoning exercise.

• How to relate peripheral parts of the topic to the more important parts.	• Use an organized way to find the most central part(s) of a problem or idea. • Use mind mapping to quickly see the central part of a topic, thus being able to find rational solutions. • Develop verbal and non-verbal communication skills.	• Contributions to group work on mind-mapping
• The link between creativity and business.	• Know what criteria must be fulfilled in order to patent an idea or invention. • Search a patent database for information, and what patents cover. • Achieve a basic understanding on how to search for the patentability of your idea.	• Group work on inventions and research on EPO database.
• Engage in fruitful collaboration. • The consequences of your approach and solution.	• Use different approaches to specific problems. • Work as a group to perform a complex task, focusing on the precise order of the steps to be carried out • Use mind mapping to opt for the best solution.	• Performance on problem-solving task. • Ability to offer constructive criticism to peers.
	• Face a sudden challenge as a group. *What will the successful outcome be?*	• Depending on the challenge, different assessment strategies may be used.
• The value of interdisciplinary research and problem solving by synthesizing a compound from aluminum foil used for purification of water.	• Gain confidence in trying out innovative solutions to a problem. • See how the apparently unrelated concepts of scrap metal waste (aluminum) and water purification are related.	• The students will have to write a report on the work and outcome, that shows the relationship between scrap aluminum and water purification.
• How great inventors have thought and proceeded to fulfill their ideas. • The concept of development, seeing where the inventor started, and where we are standing now.	• Be able to set up partial goals in an innovative process, and work towards their fulfillment. • See how an idea/concept can be continuously developed, and be able to track it back to its origins.	• Production of a research paper on an important idea / innovation, identifying the key points leading to its success. • Performance on in-class presentations.

Assignments/Exams/Papers/Projects:
Students will be evaluated in the following areas:

- Participation
- Quiz on the human brain
- Paper on the history of an idea
- Practical work
- Homework and tasks

Grading/Evaluation:
Attendance is mandatory and class participation will be encouraged. More than two unjustified absences will contribute negatively to the final grade, as specified under Course and Classroom Policies on this document.

The assigned tasks presented by the student will be taken into account as positive if they are handed in *on time*. Late assignments may be accepted under motivated circumstances. DO TALK TO ME IF YOU HAVE

PROBLEMS TURNING IN THE HOMEWORK ON TIME, AND I WILL LET YOU KNOW IF YOUR CIRCUMSTANCES MOTIVATE A LATE SUBMISSION. If late submission is not motivated, the delayed homework assignments will not count towards your final grade.

The percentage of each part of the course to the final grade will be:

- Participation: 20%
- Quiz on the human brain: 10%
- Practical work: 30%
- Homework and tasks: 20%
- Paper on the history of an idea: 20%

If the students consistently arrive more than 10 minutes late, 5% will be taken away of the grade each time. More than eight late arrivals will make the student fail.

Participation/Attendance Policy:

The SUMC Student Handbook states the following:

Once a student is registered for a course, attendance at every meeting of every class is expected, including those held in the first week of the semester. A maximum of two unjustified absences is permitted. Each additional absence will cause the final course grade to be lowered by one-third of a letter grade, i.e., from A to A-; A- to B+; B+ to B, etc.

Excessive absences in a course will have a negative effect on the final grade. When a student is absent, the quality of his or her work in a course will deteriorate since material missed in class sessions can rarely be made up satisfactorily, even though the student remains responsible for that work.

Please note that even when a student has a justified reason for missing class, such as illness, the negative academic impact on learning will be the same as if the absence were for spurious reasons.

In this course, any absence due to illness should be justified by a note from the student's physician or other health professional confirming the day(s) on which the student was unable to attend class. Students are responsible for all material and assignments for the days missed, regardless of the reason for the absence.

The fact that a student is present in class does not alone contribute to the participation score. Participation and improvement in class is what makes up 20% of the grade.

In the event that a class meeting is unexpectedly cancelled, students will be expected to continue with readings or other assignments as originally scheduled. Any assignments due or class activities (e.g., a quiz, exam or presentation) planned for such a cancelled class are due at the next class meeting unless other instructions are communicated.

Disability Statement

If you anticipate issues related to the format or requirements of this course, please meet with me. I would like us to discuss ways to ensure your full participation in my classroom.

If formal, disability-related accommodations are necessary, it is very important that you be registered with the Office of Disability Services (ODS) at the main Campus in Boston so that I am notified of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations. Check the ODS web site at www.suffolk.edu/disability for information on accommodations.

Student Resources:
SUMC provides a range of student services, both academic and personal. To learn more about course-related tutorials and academic workshops, refer to the SUMC Student Handbook, Section 5 "Living in Madrid", which contains information on the medical and mental health resources, including an English-speaking therapist, available to you.

Midterm Review:
At midterm, on week 7, you will be given a midterm grade based on your progress to date and performance on assignments, quizzes and midterm exam. Midterm grades of C- or below will be reported to the Madrid Campus Academic Standing Committee, with an explanation of what I believe has contributed to that grade: excessive absences, poor time management or study skills, lack of effort, difficulty with the course material or with writing or language skills, etc. The Academic Standing Committee or I may contact you to suggest strategies for addressing these difficulties. I strongly encourage you to visit me during my office hours so we may discuss how you can be successful in this class.

Academic Misconduct: www.suffolk.edu/studenthandbook/19863.php
Suffolk University expects all students to be responsible individuals with high standards of conduct. Students are expected to practice ethical behavior in all learning environments and scenarios, including classrooms and laboratories, internships and practica, and study groups and academic teams. Cheating, plagiarism, unauthorized collaboration, use of unauthorized electronic devices, self-plagiarism, fabrication or falsification of data, and other types of academic misconduct are treated as serious offenses that initiate a formal process of inquiry, one that may lead to disciplinary sanctions.

Student work will be thoroughly examined for academic integrity and may be scanned using plagiarism detection software. A faculty member suspecting academic misconduct will contact the student using the Suffolk email address to schedule a meeting and will make all effort to do so within five business days of detecting the incident. During the meeting, the faculty member will present the documentation that led to suspected academic misconduct. Resolution of the incident will be according to the procedures outlined in the SUMC Student Handbook, 2016-2017.

Academic Grievances Policy:
www.suffolk.edu/studenthandbook/67192.php

Course Schedule
The schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better student learning.

Week /Dates	General topic of lesson	Readings or other assignments due
1/ Jan 19	Introduction. A ppt-presentation on creative thinking will be given. A short movie on the first case study of brain injury will be shown.	
2/ Jan 24 and 26	Mind mapping: A powerful tool to bring order to your scattered ideas! Combining ideas. Sales pitches: How do I market my idea? The scientific method: what does it mean, how can it be applied and how does it correlate to creativity?	A ppt-presentation on mind mapping will be given. Mind mapping exercises will be handed out. We will also apply mind mapping to the concept of combining ideas, and a short sales pitch to market the newborn idea will be given.

3/ Jan 31 and Feb 02	The scientific method: what does it mean, how can it be applied and how does it correlate to creativity?	A ppt-presentation on the scientific method will be given. Next, the students will be given a series of tasks to investigate. They will need to formulate testable hypotheses, and test them! Use of mind mapping recommended. function Submission homework on the brain. You will get topics to assess in groups of 3-4. You should categorize them as good, bad or interesting…and have good arguments for your choice!
4/ Feb 07 and 09	The function of the brain.	Homework on the function of the brain to be handed out. Readings on Mind mapping to be handed out
6/ Feb 14 and 16	Continuation of the function of the brain. Mind mapping-presentation and excercises.	Homework on the function of the brain to be submitted.
7/ Feb 21 and 23	Patentability and patents-an overview. Demonstration of EPO database search	Quiz on the human brain. We will prepare creative games (numerical quizzes, riddles etc to challenge each other with).Establishment of topics to be searched on the EPO database. You will carry out the actual searches as homework this week.
8/ Feb 28 and Mar 02	Midterm exam. Creativity games!	The midterm exam will cover the material taught so far. We will wind down for spring break with a set of challenging creativity games.
9/ Mar 07 and 09	**SPRING BREAK**	
10/ Mar 14 and 16	Egg throwing! Recycling and climate change.	We will have an egg throwing challenge . First, you will come up with ideas on how to throw eggs without breaking them. Then there will be a challenge! This week, we will also talk about recycling and how to help the planet to survive. We will prepare useful items from recyclables.
11/ Mar 21 and 23	Cont. Recycling and climate change. Show and sales pitch of products made from recyclables.	
12/ Mar 28 and 30	Lecture on how common products and chemicals can be used for unexpected purposes. Purification of water with Alum.	Assignment of tasks related to the lab activity. Selection of topic for the paper on The history of an idea.
13/ Apr 04 and 06	Cont. Purification of water with alum. Presentation of results for the lab activity. Mind mapping exercise related to the lab activity.	
14/ Apr 11 and 13	One session for group work on the paper. Presentation of the paper.	Submission of lab-related excercises
15/ Apr 18 and 20	Presentation of the paper	
16/ Apr 27	Review session	