

Nature, Design and Technology: The Multi-Disciplinary 21st Century

There are no pre-requisites or co-requisites for this course, but seat belts are recommended.

Instructor: Robert H. Hacker

TA: TBA

Email: rhfla@gmail.com

EA: Krista Hermantin khermant@fiu.edu

Office: StartUP FIU MARC 3rd Flr

Class Time: TU 9-1145am

Class Loc.: MARC 3RD FLR In Person

Office Hours: After class or by appointment

Course Description

“The main task in this century will be to apply our ecological knowledge and systemic thinking to the fundamental redesign of our technologies and social institutions, so as to bridge the gap between human design and the ecologically sustainable systems of nature.” Fritjof Capra

The course examines the 21st century and the Fourth Industrial Revolution through an exploration of fundamental questions surrounding two frameworks:

1. Nature, design and technology.
2. Humanity, learning, network

These frameworks provide insight into the interconnectedness of existing and emerging social, economic, political and environmental problems of the near future. Students will explore five main concepts—creativity and innovation, complexity, computation, design thinking, and biomimicry—as a means to develop multi-disciplinary frameworks to address problems. Course topics will also develop an understanding of the key emerging technologies--artificial intelligence, Blockchain, gaming, cyber-physical systems, biotechnology and robotics—and their impact on society.

The learning outcome from this course is to change the participant's understanding of reality from an organized, deterministic, slow changing human-centric system to a random, adaptive environment of real-time information and self-organizing networks that seamlessly combine natural and designed systems.

Course Objectives

1. To understand the issues brought about from the convergence of natural and manmade systems
2. To understand the difference between analysis and computation and why computation is required to better understand complex systems
3. To understand why some problems are addressed through design and why other problems can only be addressed through discovery

Learning Outcomes

1. The ability to understand and define the issues brought about from the convergence of natural and manmade systems
2. The ability to identify when to apply analysis and computation and why computation is required to better understand complex systems
3. The ability to identify when some problems are addressed through design and why other problems can only be addressed through discovery
4. The ability to construct a multi-perspective analysis of issues

Global Learning Outcomes

This is a Global Learning discipline-specific course.

1. Global Awareness: Students will be able to demonstrate knowledge of the interrelatedness of local, global, international, and intercultural issues, trends, and systems.
2. Global Perspective: Students will be able to conduct a multi-perspective analysis of local, global, international, and intercultural problems.
3. Global Engagement: Students will be able to demonstrate willingness to engage in local, global, international, and intercultural problem solving.

Required Texts, Articles and other Materials

Texts

1. The Systems View of Life by Fritjof Capra
2. The Model Thinker by Scott E. Page
3. Complexity: A guided Tour by Melanie Mitchell

Other readings and materials by due date are described in the [course reading list](#). All books, articles and other material in this course are presented in class by individual students. Such exercises are part of the course objective to improve communication skills. While content, and more importantly student insight, are the purpose of the presentations, most students improve their communication skills during the course.

Course Deliverables and Grading

There are no exams or papers in this course. Fifty percent of the grade is based on a team project that leads to semi-weekly, mid-term and final presentations in class. Only the final presentations are graded. The semi-weekly presentations focus on assisting the teams to evolve their original thinking on the project. Working in teams hopefully accelerates the development of collaboration skills and the development of problem resolution skills.

This semester the course project is to organize a team to compete in the international social entrepreneurship Hult Competition held in December 2021 at FIU. Students may organize a team from class students, FIU undergraduates and one FIU graduate student in

any mix totaling to a max of four. The students are also expected to participate in a Hult training program run by StartUP FIU.

Grade will be determined based on in class presentations, quality of classroom participation, reflections, class attendance and the course project. Percentages are shown below.

Class participation	10
Weekly article presentations	20
Weekly reflections	20
Final PPT	50
Total	100

One project will be identified to add to student portfolio

Very active role in class discussion is expected and required.

The second absence from class will result in a reduction of course grade and subsequent absences will precipitously reduce grade.

FIU/Honors College Policies, Activities, and Resources

Religious Observances

Every effort will be made, where feasible and practical, to accommodate students whose religious practices coincide with class requirements or scheduling. Please make sure to notify your instructor at the beginning of the semester of which dates you will be absent or any anticipated problems with completing course work.

Physical, Mental and Sensory Challenges

Every effort will be made, where feasible and practical, to accommodate students who are so challenged. Should you require accommodations, contact the Disability Resource Center, if you have not done so already.

The FIU Academic Pledge

As a student of this university:

- I will be honest in my academic endeavors.
- I will not represent someone else's work as my own.
- I will not cheat, nor will I aid in another's cheating.

Intellectual Honesty Statement

Students at Florida International University are expected to adhere to the highest standards of integrity in every aspect of their lives. Honesty in academic matters is part of this obligation. Academic Integrity is the adherence to those special values regarding life and work in an academic

community. Any act or omission by a student which violates this concept of academic integrity and undermines the academic mission of the University, shall be defined as academic misconduct and shall be subject to the procedures and penalties mandated by the University and the School of Hospitality and Tourism Management.

Misconduct Statement

Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook.

Misconduct includes: Cheating – The unauthorized use of books, notes, aids, electronic sources; or assistance from another person with respect to examinations, course assignments, field service reports, class recitations; or the unauthorized possession of examination papers or course materials, whether originally authorized or not. Plagiarism – The use and appropriation of another’s work without any indication of the source and the representation of such work as the student’s own. Any student who fails to give credit for ideas, expressions or materials taken from another source, including internet sources, is responsible for plagiarism.

Academic Misconduct Procedures and Penalties

In The Honors College, the term “honor” refers both to academic accomplishment and character. Students in Honors should therefore adhere to and be held to the highest standards of personal academic accountability. Academic dishonesty in any form, including plagiarism, is antithetical to the very definition of being an Honors student at FIU. Consequently, an Honors College student found responsible for academic misconduct will be dismissed from the College.

An Honors faculty member may bring charges of academic misconduct against an Honors student if the faculty member suspects plagiarism or other forms of academic misconduct. The faculty member will decide whether to pursue informal resolution, file formal resolution charges, or take no further action, and will follow the procedures outlined in the Academic Misconduct Procedures, available at <https://studentaffairs.fiu.edu/get-support/student-conduct-and-academic-integrity/academic-integrity/index.php>

Please refer to the following documents for additional information:

- FIU Student Handbook – <https://studentaffairs.fiu.edu/about/student-handbook/index.php>

Honors Engagement Requirements

Beginning in Fall 2014, Honors College students are required to accumulate at least 20 engagement points each academic year (Fall and Spring) by attending Honors College activities. Students attending only one semester (Fall or Spring) are required to accumulate 10 engagement points. See: <http://honors.fiu.edu/current-students/citizenship/>.

Community Service

Honors College students must also complete 20 volunteer service hours. These hours DO NOT count toward the 20 engagement points discussed above. See <http://honors.fiu.edu/current-students/community-service/>.

Student Portfolios

The Honors College will be using a portfolio method to assess students' learning outcomes. The portfolio allows for maximum flexibility in gauging student learning. Students decide (with instructor consultation) what "artifacts" or assignments to include for consideration in their portfolios to demonstrate successful achievement of each of five key student learning outcomes over the 4-year Honors experience. See: <http://honors.fiu.edu/current-students/portfolio/>.

Honors Education in the Arts (HEARTS)

The HEARTS program is designed to give Honors College students opportunities to "explore and appreciate different artistic and cultural traditions and modes of artistic expression. HEARTS will also serve as a clearinghouse (and curatorial framework) for our students to experience the arts on campus and in the community by providing them with information about cultural activities and access to performances with free or discounted tickets. <http://honors.fiu.edu/current-students/hearts/>

Resources:

Panthers Care & Counseling & Psychological Services

If you are looking for help for yourself or a fellow classmate, Panthers Care encourages you to express any concerns you may come across as it relates to any personal behavior concerns or worries you have, for the classmate's well-being or yours; you are encouraged to share your concerns with FIU's Panthers Care website.

Counseling and Psychological Services (CAPS) offers free and confidential help for anxiety, depression, stress, and other concerns that life brings. Learn more about CAPS at caps.fiu.edu. Professional counselors are available for same-day appointments. Don't wait to call 305-348-2277 to set up a time to talk or visit the online self-help portal.

Cell Phones

Cell phones and beepers are prohibited during class.

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