Program Summary, Planning Guide and Electives

Bachelor of Science in Sustainability Studies

Major Code: 7039
Degree Awarded: Bachelor of Science
Delivery Mode(s): Classroom
Location(s): Main Campus - Melbourne
Admission Status: Undergraduate
Age Restriction: No

Sustainability professionals use combinations of interdisciplinary skills to create and manage complex social, environmental, and economic systems within a wide array of occupations. The program curricula expands on Florida Tech's well-known science and technology strengths and adds a unique combination of business and social science courses to produce unusually well-rounded graduates that can operate across multiple disciplines in the 21st century workforce. Four concentrations are offered: Technology & Engineering, Business & Economics, Environmental Sciences, and Social Sciences.

The program emphasizes advanced educational experiences, hands-on projects (individually and in teams), opportunities for research on campus or internships in the community, and the training of graduates who will excel either in the changing job market or interdisciplinary graduate schools. Final capstone projects use a campus classroom model: students address real-world sustainability challenges to generate explicit products and build marketable skills.

Degree Requirements
Candidates must meet the minimum course requirements (126 total credits) as outlined in the program planning guide (next page). As a part of the curriculum, 24 credits of restricted electives from the four program concentrations are required as follows:

- Environmental Sciences minimum of 6 cr (ES)
- Technology & Engineering minimum of 6 cr (TE)
- Business & Economics minimum of 6 cr (BE)
- Social Sciences minimum of 6 cr (SS)

To encourage an individual focus on areas of greatest personal interest, students take an additional *15 open credits from any of the program concentrations* in consultation with their advisor. These electives are termed "Concentration Courses" in the program guide. The 15 credits can come from any courses in the list of program electives.

Admission Requirements
Students intending to apply should complete at least one year of high school environmental sciences or biology and at least one year of chemistry or physics. Courses in economics or business are encouraged but not required. Additional university admissions requirements apply.

Program Planning Guide - Sustainability Studies - Bachelor of Science (Major Code 7039)						
Student:					Effective 2020-2021 Catalog Year	
Sem Taken	**Prg**	**Course #**	**Cr**	**YEAR ONE**	**Pre/Co**	**Notes**
				Semester One - Fall		
	ASC	**1000**	1	**University Experience**	None	
	SUS	**1500**	3	**Introduction to Sustainability**	None	
	COM	**1101**	3	**Composition & Rhetoric**	None	
	ENS	**1001**	3	**Whole Earth Course**	None	
	MTH	**1001**	4	**Calculus 1**		Based on placement test
		Sem cr	**14**			
				Semester Two - Spring		
	BUS	**1801**	3	**Global Business Perspectives**	None	
	COM	**1102**	3	**Writing About Literature**	COM 1101	
	BIO	**1020, 1040**	3+1	**Biological Discovery 2 & Lab**	None	
	MTH	**1002**	4	**Calculus 2**	MTH 1001	Based on Sem 1 placement
	XXX	**XXXX**	3	**Technical Elective**	*	Advisor-approved Sci-Eng. course
			17			
Sem Taken	**Prg**	**Course #**	**Cr**	**YEAR TWO**	**Pre/Co**	**Notes**
				Semester Three - Fall		
	HUM	**2051**	3	**HUM Core course, 7 options**	COM 1102	Diverse options - see catalog
	CHM	**1101, 1111**	3+1	**Chemistry 1 & Lab**	None	
	BUS	**2303**	3	**Macroeconomics**	None	
	PHY	**1001**	4	**Physics 1**	MTH 1002	
	COM	**2223**	3	**Scientific & Technical Writing**	COM 1102	
			17			
				Semester Four - Spring		
	HUM	**2XXX**	3	**HUM Core course, 7 options**		Diverse options - see catalog
	CHM	**1102, 1112**	3+1	**Chemistry 2 & Lab**	CHM 1101	
	BIO	**2801**	4	**Biometry**	BIO 1020	
	PHY	**2002**	4	**Physics 2**	PHY 2001	
			15			
Sem Taken	**Prg**	**Course #**	**Cr**	**YEAR THREE**	**Pre/Co**	**Concentration Course Chosen**
				Semester Five - Fall		
	HUM	**3385**	3	**Special Topics in History**	HUM 2051	N/A
	XXX	**XXXX**	3	**Technical Elective**	*	Advisor-approved Sci-Eng. course
	XXX	**XXXX**	3	**Concentration Course (Env. Sci.)**		
	XXX	**XXXX**	3	**Concentration Course (Soc, Sci.)**		
	XXX	**XXXX**	3	**Concentration Course**		
			15			
				Semester Six - Spring		
	SUS	**3250**	3	**Systems, Governance, & Sustainabili**	ISC 1500	N/A
	ENS	**4300**	3	**Renewable Energy & the Environ.**	PHY 2002	N/A
	XXX	**XXXX**	3	**Concentration Course (Bus.)**		
	XXX	**XXXX**	3	**Concentration Course**		
	XXX	**XXXX**	3	**Concentration Course**		
			15			
Sem Taken	**Prg**	**Course #**	**Cr**	**YEAR FOUR**	**Pre/Co**	**Concentration Course Chosen**
				Semester Seven - Fall		
	BUS	**4426**	3	**Environmental & Resource Economic**	MTH 1001	N/A
	SUS	**3999**	3	**Sustainability Project Design**	ISC 1500	N/A
	XXX	**XXXX**	3	**Concentration Course (Bus.)**		
	XXX	**XXXX**	3	**Concentration Course (Tech./Engin.)**		
	XXX	**XXXX**	3	**Concentration Course (Soc. Sci.)**		
	XXX	**XXXX**	3	**Concentration Course**		
			18			
				Semester Eight - Spring		
	SUS	**4000**	3	**Applied Sustainability**	ISC 3999	N/A
	SUS	**4350**	3	**Sustainability Economics**	BUS 4426	
	XXX	**XXXX**	3	**Concentration Course (Tech./Engin.)**		
	XXX	**XXXX**	3	**Concentration Course (Env. Sci.)**		
	XXX	**XXXX**	3	**Concentration Course**		
			15			
	Progr. Cr Total		**126**			

Bachelor of Science - Sustainability Studies
List of Program Electives

<u>Business & Economics</u> (Concentration courses: minimum of 6 BE credits)
BUS 2304 Microeconomics (3)
BUS 2601 Legal & Social Environment of Business (3)
BUS 2602 Environmental Law & Forensic Studies (3)
BUS 3501 Management Principles (3)
BUS 3605 Consumer Behavior (3) *Prerequisite: BUS 3501.*
BUS 3801 Cross-Cultural Management (3) *Prerequisite: BUS 3501.*
BUS 3802 Global Macroeconomic Issues (3) *Prerequisite: BUS 2304.*
BUS 4219 Globalization & Corporate Responsibility
BUS 4425 Environmental & Urban Planning (3) *Prerequisite: BUS 3501.*
BUS 4503 Business Ethics (3) *Prerequisite: BUS 3501.*
BUS 4504 Special Topics: Sustainable Tourism (3) *Prerequisite: BUS 3501.*
BUS 4520 Leadership Theory & Practice (3) *Prerequisites: BUS 3501 or BUS 4502.*
BUS 4701 International Business (3) *Prerequisites: BUS 2211, BUS 2212, BUS 3401 and BUS 3501.*
BUS 4801 International Trade (3) *Prerequisites: BUS 2304, BUS 3802.*
BUS 5457 Negotiation & Conflict Management (3)
BUS 5487 New Venture Development (3)
BUS 5612 Cross-cultural Management (3)
BUS 5614 Global Business Strategy (3)

<u>Environmental Sciences</u> (Concentration courses: minimum of 6 ES credits)
BIO 2935 Field Biology & Ecology – Smoky Mountains (3)
BIO 2955 Field Biology & Ecology – Coral Reefs (3)
BIO 3410 General Ecology (3) *Prerequisite: BIO 2801.*
BIO 3510 Invertebrate Zoology (4)
BIO 3601 Field Methods in Fisheries Science (3) *Prerequisite: BIO 2801.*
BIO 3625 Molluscan Aquaculture (3) *Prerequisite: BIO 3510.*
BIO 3940 Tropical Marine Ecology (3)
BIO 4030 Conservation Biology (3) *Prerequisites: BIO 2801, BIO 3410 and BIO 4410.*
BIO 4410 Community Ecology (4) *Prerequisites: BIO 2801, BIO 3410.*
BIO 4421 Neotropical Archeoecology (3) *Prerequisite: BIO 4420.*
BIO 4515 Ecology of Coral Reefs (3) *Prerequisites: BIO 3410, BIO 4410.*
BIO 4517 Introduction to Modeling: Ecology & Biology (3) *Prerequisite: BIO 3410.*
BIO 4530 Biology of Fishes (4) *Prerequisite: BIO 3410.*
BIO 4620 Fish Aquaculture & Management (3)
BIO 4641 Biology of Marine Mammals (3)
BIO 4720 Marine Ecology (4) *Prerequisites: BIO 2801, BIO 3410.*
ENS 3101 Atmospheric Environments (3)
ENS 4001 The Earth System: Science, Engineering, Management and Education (3)
ENS 4004 Aquatic Environmental Toxicology (3)
ENS 4010 Geographic Inform. Systems (3)
ENS 4700 Environmental Hydrology (3)
ENS 4701 Environ. Regulation & Impact Assessment (3)
ENS 5001 Global Environmental Problems/Solutions (3)
ENS 5903 Special Topics: Global Climate Change (3)
MET 4310 Climatology (3) *Prerequisites: MTH 2401, OCN 2407.*
MTH 2332 Primer for Biomath (3)
OCN 1010 Oceanography (3)

OCN 2407 Meteorology (3)
OCN 2602 Environmental Geology (3)
OCN 3101 Biological Oceanography (3)
OCN 3111 Biological Oceanography Laboratory (1) *Corequisite: OCN 3101.*
OCN 3201 Marine & Environ. Chemistry (3) *Prerequisite: CHM 1102.*
OCN 3211 Marine & Environ. Chemistry Laboratory (1) *Corequisite: OCN 3201.*
OCN 3301 Geological Oceanography (3) *Prerequisites: OCN 1010, OCN 2602.*
OCN 3311 Geological Oceanography Laboratory (1) *Corequisite: OCN 3301.*
OCN 4102 Marine and Estuarine Phytoplankton (3) *Prerequisite: OCN 3301.*
OCN 4103 Marine and Estuarine Zooplankton (3) *Prerequisite: OCN 3301.*
OCN 4104 Marine and Estuarine Benthos (3) *Prerequisite: OCN 3301.*
OCN 4106 Mitigation & Restoration of Coastal Systems (3)
OCN 4204 Marine & Environmental Pollution (3) *Prerequisites: OCN 1010 or OCN 3201.*
OCN 5801 Coastal Systems Planning (3)
OCN 5903 Special Topics: Marine Protected Areas (3)

Social Sciences (Concentration courses: minimum of 6 SS credits)
COM 3242 Journalism (3) *Prerequisite: COM 2225.*
COM 3425 Mass Communication (3 *Prerequisite: COM 2425.*
COM 4130 Global Communication (3)
HUM 1540 Ethics (3)
HUM 2080 Principles of Sociology (3)
HUM 2480 Introduction to Political Science
HUM 2570 Bioethics (3)
HUM 3085 Special Topics in Humanities (3)
HUM 3351 History of Science and Technology: Ancient and Medieval (3)
HUM 3352 History of Science and Technology: Renaissance to Present (3)
HUM 3485 Sp. Topics in Social Science (3)
HUM 3521 World Religions (3)
PSY 1411 Introduction to Psychology (3)
PSY 1461 Psychology of Adjustment and Personal Growth (3)
PSY 2444 Cross-Cultural & Ethnic Psychology (3) *Prerequisite: PSY 1411.*
PSY 2541 Group Behavior (3) *Prerequisite: PSY 1411.*
PSY 3441 Social Psychology (3) *Prerequisite: PSY 1411.*
PSY 3421 Psychology of Learning & Motivation (3) *Prerequisite: PSY 1411.*
PSY 3541 Psychology of Leadership (3) *Prerequisite: PSY 1411.*
PSY 3543 Psychology of the Workplace (3) *Prerequisites: CRM 3012 or PSY 2512 or PSY 3012.*
PSY 4465 Introduction to Applied Behavior Analysis *Prerequisites: PSY 1411, PSY 3421.*
PSY 4541 Culture & Psychology (3) *Prerequisites: PSY 1411, PSY 2512, PSY 3441, PSY 3442 & PSY 3513.*
EDS 5430 Methods in Environ. Problems & Issue Investigation (3)
EDS 5440 Methods in Citizenship & Environ. Responsibility (3)

Technology & Engineering (Concentration courses: minimum of 6 TE credits)
AVM 3201 Aviation Planning (3)
AVM 3202 Airport Design (3)
AVS 2402 Introduction to Aviation Environmental Science (3)
AVS 4402 Aviation Sustainability (3) *Prerequisites: AVT 1001, AVS 1201. Coreq.: AVS 1201*
CHE 3170 Introduction to Environmental Engineering (3)
CHM 2001 Organic Chemistry 1 (3)
CHM 2002 Organic Chemistry 2 (3) *Prerequisite: CHM 2001*
CHM 4222 Environmental Chemistry (3) *Prerequisites: CHM 2001, CHM 2002.*
CON 1004 Construction Plan Reading (3)
CON 2001 Construction Methods & Operations (3) *Prerequisite: CON 1004.*
CON 3002 Building Mech. & HVAC Systems (3) *Prerequisites: CON 1001, PHY 1999.*

CON 4003 Construction Estimating, Bidding, & Value Engineering (3) *Prerequisites: CON 1004, CON 2001 and CVE 2001.*
CSE 1301 Introduction to Computer Applications (3)
CVE 1000 Introduction to Civil Engineering (3)
CVE 3042 Water & Wastewater Systems in Land Develop. (3) *Prerequisites: CVE 1001, MAE 2081, and MTH 2201. Coreq.: CVE 3030*
CVE 3052 Municipal Water & Waste Systems (3) *Prerequisite: CVE 1001.*
CVE 4035 Urban Hydrology (3) *Prerequisites: MAE 2081, MTH 2201, CVE 3030 and CVE 4032.*
CVE 4050 Solid and Hazardous Waste (3)
CVE 4070 Construction Engineering (3) *Prerequisites: CVE 3012; CVE 3013, PHY 1999 and PHY 2091.*
CVE 4074 Leading Construction Operations (3) *Corequisite: CVE 4070.*
CVE 4080 Urban Planning (3)
CVE 5035 Design Concepts Urban Hydrology (3) *Prerequisites: CVE 4032, MAE 2081 and MTH 2201*
CVE 5039 Groundwater Hydrology & Contaminant Transport (3) *Prerequisites: CVE 3030, MAE 2081 and MTH 2201.*
CVE 5050 Design of Remediation Systems (3)
CVE 5052 Solid Waste Management (3) *Prerequisite: CVE 5050.*
MAE 4250 Principles of Nuclear Reactors (3) *Prerequisite: PHY 2002.*
MAE 5240 Solar Energy Analysis (3) *Prerequisites: MAE 2081, MAE 2082, MAE 3161, MAE 3191, MTH 3210, MAE 4171, MTH 2001 and MTH 2201.*
OCE 1001 Introduction to Ocean Engineering (3)
OCE 4518 Protection of Marine Materials (3)
OCE 4522 Coastal Engineering Processes and Shoreline Design (3) *Prerequisites: MTH 2201, OCE 3030 and OCE 3521.*
OCE 4525 Coastal Engineering Structures (3) *Prerequisites: CVE 3030 or OCE 3030; MTH 2201 and MAE 2081.*

Additional classes may be substituted as concentration courses if approved by the student academic advisor. Students should consult early with their advisor.

Prerequisites and co-requisites for program electives listed above do not include courses that are already required within the program. See the Sustainability Studies program planning guide.