



Graduate Curriculum Approval Form Changes to Graduate Majors

Degree Program CIP Code Degree (i.e. M.A., Ph.D., etc.): Name of Major (e.g. Biology) Name of affected Concentration(s) (e.g. Botany) Proposed Effective Term (e.g. Fall 2017) Faculty Contact Email	30.3301 M.A. Global Sustainability ALL Concentrations Fall 2018 George Philippidis gphilippidis@usf.edu
---	---

APPROVALS	Name	Signature	Action	Date
Dept. Chair			<input type="checkbox"/> Approve <input type="checkbox"/> Not approved <input type="checkbox"/> Comments attached	
School Committee Chair (if applicable)			<input type="checkbox"/> Approve <input type="checkbox"/> Not approved <input type="checkbox"/> Comments attached	
College Committee Chair			<input type="checkbox"/> Approve <input type="checkbox"/> Not approved <input type="checkbox"/> Comments attached	
College Dean/ Associate Dean	Govindan Parayil		<input checked="" type="checkbox"/> Approve <input type="checkbox"/> Not approved <input type="checkbox"/> Comments attached	11/13/17
Concurrence <input type="checkbox"/> N/A <input type="checkbox"/> Needed	Dept: Chair:		<input type="checkbox"/> Concur <input type="checkbox"/> Doesn't concur <input type="checkbox"/> Comments attached	
Grad Council	<input type="checkbox"/> Approve <input type="checkbox"/> Not approved <input type="checkbox"/> Tabled <input type="checkbox"/> Comments	Graduate Studies	<input type="checkbox"/> Approve <input type="checkbox"/> Disapprove	

Summary of Changes – Select all that apply:

Admissions Section:

- Change Priority Admission Deadlines
 - Fall: _____
 - Spring: _____
 - Summer: _____
 - To "fall admissions only"
- From Regular to Direct Receipt Admissions
- From Direct Receipt to Regular Admission
- Admission Requirements

Curriculum Requirements

- Current Curriculum Requirements
 - Core
 - Add New Concentration, Specialization, or Track*
 - Delete Concentration, Specialization, or Track
 - Thesis/Dissertation
 - Comprehensive/Qualifying Exam
- Other: _____

*Requires submission to APAC for comment/clearance

Why are these changes necessary?

We are proposing implementing a new M.S. degree utilizing 8 of the 9 current M.A. concentrations as well as adding a new concentration to the M.A. to better meet the student and employer needs. In addition, we are updating the admissions requirements and core curriculum to meet the required standards.

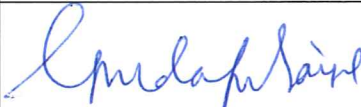
Attach the current Catalog Copy, with the requested revisions shown using Track Changes. Catalog copy is not required for changes to the Admission Deadline. All other changes require Catalog Copy. To obtain the most current catalog, email cdh@usf.edu.

Once College has approved, scan and email this Approval Form, and the revised Catalog Copy in Word to Graduate Studies by the deadline posted online <http://www.grad.usf.edu/graduate-council.php>. For questions, contact cdh@usf.edu

New Academic Major/Program or Degree Type in an Existing CIP Code

Signature Page

Degree and Major/Program Title (e.g. M.A. in Biology)	M.S. in Global Sustainability
---	-------------------------------

APPROVALS	Name	Signature	Action	Date
Initiating Faculty	George Philippidis		Requests Approval	
Dept. Chair			<input type="checkbox"/> Approve <input type="checkbox"/> Disapprove <input type="checkbox"/> Comments attached	
COLLEGE APPROVALS				
College Committee Chair			<input type="checkbox"/> Approve <input type="checkbox"/> Disapprove <input type="checkbox"/> Comments attached	
College Dean or Designee	Govindan Parayil		<input checked="" type="checkbox"/> Approve <input type="checkbox"/> Disapprove <input type="checkbox"/> Comments attached	11/13/17
Concurrence* <input type="checkbox"/> Not Applicable	Dept: Chair:		<input type="checkbox"/> Concur <input type="checkbox"/> Doesn't Concur <input type="checkbox"/> Comments attached	
Concurrence* <input type="checkbox"/> Not Applicable	Dept: Chair:		<input type="checkbox"/> Concur <input type="checkbox"/> Doesn't Concur <input type="checkbox"/> Comments attached	
USF Library Dean or Designee <input type="checkbox"/> Not Applicable			<input type="checkbox"/> Approve <input type="checkbox"/> Disapprove <input type="checkbox"/> Comments attached	
Faculty Council Chair or Designee			<input type="checkbox"/> Approve <input type="checkbox"/> Disapprove <input type="checkbox"/> Comments attached	
Undergraduate or Graduate Studies Dean or Designee			<input type="checkbox"/> Approve <input type="checkbox"/> Disapprove <input type="checkbox"/> Comments attached	
System Office of Institutional Effectiveness			Notified on _____	

Routing:

Once approved by College; College will forward to the appropriate USF Institution undergraduate or graduate office for processing through the Faculty Council. Once approved by the Council, the proposal is sent to APPCC for review and approval (unless a doctorate, in which case it is for information only). Upon final approval by the Provost, the new major code for the Program may be created by the Registrar and the VZ application may be activated. The Program will be then be added to the USF System Degree Inventory and posted in the Catalog.

Please provide a succinct, thorough response to each of the following:

Program Summary: *(Briefly describe the proposed program)*

1. Briefly summarize the overall rationale for the new graduate program. Include a consideration of any ways in which the proposed graduate program is distinct from others already offered in the SUS (use the 4-digit CIP as a guide). Discuss how this program supports specific university and SUS missions. Consider collaborative opportunities with other SUS institutions as appropriate. (maximum length 250 words)

We are proposing the creation of an M.S. degree option in addition to our current M.A. degree offering by moving 8 of the 9 currently existing concentrations to the new M.S. degree option given that those concentrations are primarily based on applied science and engineering. Both the M.S. and the M.A. degree programs will retain the current CIP code 30.3301 (Sustainability Studies) and assist in increasing the availability of STEM degrees for students and professionals that are important for career placement.

We anticipate increased collaboration efforts with other USF colleges in delivering the M.S. degree program and increased opportunities to form partnerships with the rest of SUS institutions to better serve STEM-based studies and related research areas of interest in global sustainability throughout Florida.

2. Briefly describe how the proposed new graduate program differs from the existing program(s) at USF.

The M.A. in Global Sustainability degree using the CIP 30.3301 (sustainability studies) is currently the only master's degree under this CIP code. Currently there is no applied science-based sustainability graduate curriculum at USF such as the proposed M.S. in Global Sustainability at USF. This has created a gap for students and professionals that seek a research and applied science-oriented graduate degree in sustainability. This interdisciplinary program is unique in its structure, similar to the existing M.A. in that it will utilize multiple courses from departments at USF to achieve the learning objectives needed in each concentration. Additionally, the online delivery of all core courses as well as six of the eight concentrations will allow professionals and distance learners to achieve their educational goals.

(maximum length 250 words)

Student Demand: *(Describe the demand in the SUS for the proposed graduate program)*

3. Briefly describe the demand for the proposed graduate program and consider the following in your narrative:
- Recognizing that programs at different levels may require different degrees of justification (e.g., greater duplication may be warranted at undergraduate and master’s levels), indicate why duplicative programs should be warranted.
 - Consider the numbers of graduates and students enrolled at similar programs currently offered online or face-to face.
 - Consider as applicable: place-bound learners, underserved populations in the field/profession, and professional credentials requirements. (maximum length 250 words)

While the current M.A. degree in Global Sustainability has been an option for students seeking graduate studies in sustainability concentration areas such as energy, entrepreneurship, transportation and water, we have realized a growing need at USF for an M.S. in Global Sustainability. Numerous courses in the current M.A. degree are extracted from other M.S. degrees at the University of South Florida, and an increasing number of applicants with Bachelor’s degree in areas such as applied sciences and engineering are seeking a graduate degree in sustainability. The addition of the M.S. degree will make the University of South Florida more competitive with other sustainability programs around the country, who capitalize on their M.S. offerings for STEM students.

The conversion of eight existing concentrations to the new M.S. will accommodate approximately 85% of the 240 active students currently in our program. While there are SUS programs offering undergraduate degrees in sustainability studies, the Patel College of Global Sustainability’s proposal approval would allow the University of South Florida to be the only University in the SUS offering a Master’s level degree in Global Sustainability. Moreover, the Patel College of Global Sustainability is the only college of sustainability in the SUS. The addition of an M.S. in Global Sustainability will strengthen USF’s reputation as a leader in global sustainability graduate education and research. This proposal will strengthen USF’s vision of being a global change leader.

Workforce and Economic Development Needs: *(Describe how the proposed program meets workforce and economic development needs)*

4. Briefly describe how the proposed program meets workforce and economic development needs and consider the following in your narrative:
- Impact of this program (local, state, national, international)
 - Impact of research funding
 - Changing professional credential requirements (maximum length 250 words)

The demand for well-educated, certified and experienced graduates and professionals in multiple areas of sustainability has grown tremendously, especially over the last decade. Most of those areas, such as energy, water, food, and climate change, require strong technical skills. The proposed M.S. program will help USF serve the need for such sustainability skills nationally and internationally through applied research (thesis option), application projects, and science based technical courses. This new degree will allow enhanced opportunities for students who want additional STEM education and opportunities that are in line with their B.S. background, which many industries and businesses desire. For example, job creation in the renewable energy sector has outpaced the fossil fuel sector (6% vs -4.5%) (<http://www.businessinsider.com/solar-energy-job-growth-2017-1>) in the field of energy that requires strong technical skills. As both solar and wind careers are growing at a rate 12 times faster than the rest of the US economy (<http://edfclimatecorps.org/nowhiringreport>), it behooves USF to become more active in preparing the green workforce of the future by educating students on how to create sustainable products and services or even create new business ventures in the field of sustainability.

Student Learning Outcomes:

5. Please list the Student Learning Outcomes for the new graduate program (undergraduate programs must comply with BOG Regulation 8.016 “Academic Learning Compacts”).

Students in the M.S. program will be equipped with technical skills to analyze problems and develop solutions at the local and global scales. They will utilize holistic approaches to addressing complex environmental, social and economic challenges for sustainable development. Upon completion of the program students will:

- Apply systems thinking approach to analyze the complex interactions among the environmental, social and economic systems
- Use interdisciplinary approaches to solving sustainability related challenges at local and global levels
- Develop solutions to real world sustainability related problems based on research or practical project applications
- Develop scientific writing and presentations skills

Course and Faculty Information:

6. Provide a list of the required courses for the new graduate program. (Include course prefix, number, title and credit hours). Please place an (*) next to those the will be newly created for this program.

IDS 6224 – Sustainability Science, 3 Credits
IDS 6234 – Systems Thinking: The Key to Sustainability, 3 Credits
IDS 6235 – Economics and Finance for Sustainability, 3 Credits
IDS 6225 – Research Methods for Sustainability Science, 1 Credit*
IDS 62XX – Master’s Thesis, 6 Credits*

7. Provide a list of the faculty who will be teaching courses in the new graduate program and the percentage of effort they will be providing.

(Please include all participating faculty)
TH Culhane
Joseph Dorsey
Kebreab Ghebremichael
George Philippidis
David Randle
Michael Spencer
Louis Zunguze

Additional Information:

8. Does the new graduate program require additional library resources? Yes _____ No X
If yes, please describe the additional requirements. (Approval must be obtained from the Dean of Libraries.)

Catalog Copy (Attach in Word)

9. Using the current Catalog copy for the existing graduate program, make the necessary curriculum revisions to the existing program (using track changes in Word) to reflect the degree requirements of the new program and attach the revised catalog copy.

GLOBAL SUSTAINABILITY

Master of Science (M.S.) Degree

DEGREE INFORMATION

Priority Admission Application Deadlines:

Fall: June 1
Spring: October 15
Summer: n/a

International applicant deadlines:

<http://www.grad.usf.edu/majors>

Minimum Total Hours: 31
Level: Masters
CIP Code: 30.3301
Dept Code: CS
Major/College Codes: GBS / CS
Approved

Concentrations:

Climate Change and Sustainability (CLT)
Coastal Sustainability (COA)
Entrepreneurship (ETR)
Food Sustainability and Security (FOO)
Sustainable Business (SBU)
Sustainable Energy (SUSE)
Sustainable Transportation (STN)
Water (WTR)

Graduate Certificates Offered:

See Graduate Certificates:

<http://www.usf.edu/innovative-education/programs/graduate-certificates/>

CONTACT INFORMATION

College: Patel College of Global Sustainability

Contact Information: www.grad.usf.edu
www.patel.usf.edu

MAJOR INFORMATION

The Patel College of Global Sustainability fosters sustainable communities and environments through collaborative research, education, and community engagement. Its research generates innovations and new knowledge that helps communities and nations around the world, including those in developing countries, to reduce their ecological footprint while improving their social, economic and environmental sustainability parameters to make them healthier, more livable, equitable and more resilient.

This innovative 31 credit hour research-oriented graduate degree offers a multidisciplinary study of the ecosystem, green technologies, and the socio-economic dimensions of sustainability to prepare students to work in the public and private sector to identify sustainability solutions. Students will apply their passion for the environment with cutting-edge applied research in a range of sustainability fields after receiving research methodology training. Classroom teaching is complemented with guest lectures by industry experts and semester-long application projects. Students can choose between a master's thesis option (6 credits) and a non-thesis option of 2 additional graduate courses (6 credits). Upon graduation, students will be ready for careers in global sustainability using their technical skills to address local, national, and international challenges.

Major Research Areas: Climate change, energy, water, food, transportation, coastal, entrepreneurship, business.

ADMISSION INFORMATION

Must meet University requirements (see Graduate Admissions) as well as requirements for admission to the major, listed below.

- GPA of at least 3.25; alternatively, a GPA of at least 3.00 along with a GRE Verbal score of 153 or higher, Quantitative of 153 or higher, and Analytical Writing of 3.5 or higher, all taken within 5 years prior to application.
- At least two Letters of Recommendation from professors or supervisors (signed, dated, and on official letterhead)
- Resume
- Letter of Interest (up to 350 words explaining why the student is interested in Sustainability)

English Proficiency Requirement

International applicants from non-English speaking countries or who have not earned a Bachelor's degree in the United States must demonstrate English Proficiency. A minimum of 600 on the paper-based TOEFL (PBT) or 100 on the Internet-based Test (iBT), IELTS score of 7.0, or a PTE-A score of 68 is required for admission.

CURRICULUM REQUIREMENTS

Total Minimum Hours - 31 Credit Hours

The M.S. in Global Sustainability degree offers a number of concentrations. Students are required to complete 30 credit hours as follows:

- Core courses – 10 credit hours
- Concentration courses – 9 credit hours
- Electives – 6 credit hours
- Thesis/Non-Thesis Options – 6 credit hours
- Comprehensive Exam

CORE COURSES – 10 credit hours

IDS 6224	3	Sustainability Science
IDS 6235	3	Economics and Finance for Sustainability
IDS 6234	3	Systems Thinking: The key to Sustainability
IDS 6225	1	Research Methods for Sustainability Science

CONCENTRATION REQUIREMENTS - 9 credits

Students select only one concentration.

Climate Change and Sustainability (CLT)

Choose three of the following courses:

IDS 6208	3	Renewable Power Portfolio
IDS 6210	3	Bioresources for a Sustainable Future
IDS 6222	3	Navigating the Sustainable Food Energy Water Nexus
IDS 6223	3	Waste Not, Want Not: Reconsidering Waste, Re-purposing Wasted Resources
IDS 6247	3	Climate Change Adaptation and Mitigation
BSC 6932	3	Ecosystem Ecology
BSC 6933	3	Conservation Biology
EVR 6216	3	Water Quality Policy and Management
MCB 5655	3	Applied and Environmental Microbiology
PHI 6680	3	Climate Change and Civil Evolution

Coastal Sustainability (COA)

Choose three of the following courses:

IDS 6223	3	Waste Not, Want Not: Reconsidering Waste, Re-purposing Wasted Resources
IDS 6240	3	Sustainable Coastal Planning: Concepts and Principles
IDS 6241	3	Sustainable Coastal Planning: Strategies and Implementation
IDS 6247	3	Climate Change Adaptation and Mitigation
EVR 6216	3	Water Quality Policy and Management
OCE 6085	3	Ocean Policy

Entrepreneurship (ETR)

Choose three of the following courses

ENT 6116	3	Business Plan Development
ENT 6186	3	Strategic Market Assessment
ENT 6930	3	Special Topics in Entrepreneurship: Global Entrepreneurship
ENT 6930	3	Special Topics/Seminars: Social Entrepreneurship

Food Sustainability and Security (FOO)

Choose three of the following courses:

IDS 6210	3	Bioresources for a Sustainable Future
IDS 6222	3	Navigating the Sustainable Food Energy Water Nexus
IDS 6223	3	Waste Not, Want Not: Reconsidering Waste, Re-purposing Wasted Resources
IDS 6270	3	Sustainable Food Production
IDS 6271	3	Future of Food: Environment, Health, and Policy
MCB 5655	3	Applied and Environmental Microbiology
PHC 6515	3	Food Safety
URP 6444	3	Global and Community Food Systems

Sustainable Business (SBU)

GEB 6457	3	Ethics, Law and Sustainable Business Practices
----------	---	--

Choose two of the following courses:

GEB 6527	3	Lean Six Sigma
MAR 6336	3	Promotional Management
MAR 6466	3	Supply Chain Management
MAR 6936	3	Selected Topics in Marketing: Sustainable Marketing

Sustainable Energy (SUSE)

Choose three of the following courses:

IDS 6207	3	Renewable Transportation Fuels
IDS 6208	3	Renewable Power Portfolio
IDS 6210	3	Bioresources for a Sustainable Future
IDS 6222	3	Navigating the Sustainable Food Energy Water Nexus
IDS 6223	3	Waste Not, Want Not: Reconsidering Waste, Re-purposing Wasted Resources
ECH 5931	3	Solar Energy and Applications
EEL 6935	3	Sustainable Energy
MCB 5655	3	Applied and Environmental Microbiology

Sustainable Transportation (STN)

Choose three of the following courses:

IDS 6207	3	Renewable Transportation Fuels
CGN 6933	3	Sustainable Transportation
TTE 5205	3	Traffic Systems Engineering
TTE 5501	3	Transportation Planning and Economics
TTE 6315	3	Transportation Safety
TTE 6507	3	Travel Demand Modeling
TTE 6651	3	Public Transportation
TTE 6655	3	Transportation and Land Use
URP 6711	3	Multimodal Transportation Planning

Water (WTR)

Choose three of the following courses:

IDS 6222	3	Navigating the Sustainable Food Energy Water Nexus
IDS 6223	3	Waste Not, Want Not: Reconsidering Waste, Re-purposing Wasted Resources
IDS 6245	3	Sustainable Water Resource Management: Doing More with Less
IDS 6246	3	Water Sensitive Urban design for Sustainable Communities
IDS 6247	3	Water Resources Planning
EVR 6216	3	Water Quality Policy and Management
MCB 5655	3	Applied and Environmental Microbiology

Electives for all concentrations - 6 credit hours

Any other concentration's courses are preferred electives. Other courses may be considered by its instructor and PCGS Academic Program Director.

Thesis/Non-Thesis Requirements

Choose one of the following options:

- (A) IDS 6XXX 6 Sustainability Thesis
 (B) Two additional courses (totaling a minimum of 6 credit hours) related to the selected concentration area with prior approval of the concentration director.

In the case of option (A), a thesis (6 credit hours), the following requirements apply:

- A minimum of 6 credits of IDS 62XX (Thesis credit hours) under the supervision of a USF faculty member
- A written thesis
- A successful thesis defense in front of a committee consisting of the concentration director and 2 more USF faculty members

The required 6 credit hour Thesis will be completed in the student's last semester.

Comprehensive exam

For students selecting the thesis option (A), the thesis defense serves as the program's comprehensive exam. For students selecting the non-thesis option (B), they will have to pass a comprehensive PCGS exam after completing all course work.

COURSES

See <http://ugs.usf.edu/course-inventory/>