

Certificate Programs

Graduate Certificate in Biodiversity Conservation and Management

Joel Heinen, *Director, Earth and Environment*

The Graduate Certificate in Biodiversity Conservation and Management draws on areas of strength within the Department of Earth and Environment and the Department of Biological Sciences (College of Arts and Sciences) to provide students with specialized knowledge about managing and conserving the earth's biological resources. It is designed for students who seek careers in agencies that manage and conserve biological resources, for people in the private sector who seek specialized knowledge in this area, for educators seeking advanced training, or for others interested in the topic. The certificate is managed by the Department of Earth and Environment and the Biodiversity and Conservation Certificate Committee. This certificate program is open to degree-seeking students only.

Admission Requirements

Students must have an earned bachelor's degree with a minimum of a 2.75 in the last 60 credits of their upper division coursework. Students must be in good academic standing. Students should have completed a minimum of 2 courses in general biology and one course in ecology as a prerequisite to the program.

Program Requirements

Students are required to take 15 credit hours of graduate level course work outlined below. Other related courses may be approved subject to consideration by the program director and committee on a case by case basis.

1. Foundational

EVR 5409	Advanced Conservation Biology	3
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2. Conservation Sciences and Management, 6 credits total

Take two courses from this list:

PCB 5046	Plant Conservation Biology	3
EVR 5069	Wetland Ecology and Management	3
EVR 5376	Advanced Ecology and Management of Invasive Species	3
SWS 5305	Advanced Soil Resources Analysis	3

3. Integrated Biological Resources Management, 6 credits total

Take two courses from this list:

PCB 5418C	Advanced Marine Protected Areas	4
BOT 5816	Ethnobotany	3
EVR 6360	Protected Area Management	3
EVR 6406	U.S. Endangered Species Management	3
EVR 6330	Tropical Ecosystems Management	3

Graduate Certificate in Cognitive Neuroscience

Anthony Steven Dick, *Director, Psychology*

Timothy Allen, *Psychology*

Sean Allen-Hermanson, *Philosophy*

Prem Chapagain, *Physics*

Raul Gonzalez, *Psychology*

Angela Laird, *Physics*

Robert Lickliter, *Psychology*

Wei-Chiang Lin, *Biomedical Engineering*

Kinsuk Maitra, *Occupational Therapy*

Aaron Mattfeld, *Psychology*

Dana McMakin, *Psychology*

Eliza Nelson, *Psychology*

Elaine Ramos, *Communication Sciences & Disorders*

Bethany Reeb-Sutherland, *Psychology*

Bennett Schwartz, *Psychology*

Fabián Soto, *Psychology*

Matthew Sutherland, *Psychology*

Jamie Theobald, *Biological Sciences*

The Graduate Certificate in Cognitive Neuroscience is designed to advance the scientific education and professional development of students through coursework covering a broad range of areas of neuroscience. The 15-credit program specifically will provide students with an interdisciplinary background in cognitive psychology/cognitive science and neuroscience. The curriculum concentrates on teaching theory and methodology for conducting and understanding research in cognitive neuroscience and its potential application to education and clinical practice. This certificate program is open to degree-seeking students only.

Admission Requirements

1. Matriculation into a graduate program or baccalaureate degree from an accredited institution of higher education (or equivalent) with a minimum 3.0 GPA in the last two years of undergraduate work;
2. Current resume or curriculum vitae;
3. Official academic transcript

Program Requirements

There are two Core Course Categories, Cognitive Neuroscience and Neuroscience, from which students must take one course each (6 credits). The remaining 9 credits can be taken from the listed Electives or from the remaining courses in the Core Course categories. Additional courses may be accepted for the certificate with approval of the Program Director.

Core Requirement 1: Cognitive Neuroscience (3 credits)

DEP 5058	Biological Basis of Behavior Development	3
EXP 5667	Cognitive Neuroscience	3
PHI 5931	Advanced Topics in Philosophy of Mind and Cognitive Science	3

Core Requirement 2: Neuroscience (3 credits)

BME 5505C	Engineering Foundation of Medical Imaging Instrument	3
PHY 6716	Advanced Biophysics	3
ZOO 5785	Advanced Neurobiology	3

Electives: (Up to 9 Credits)

CHM 5305	Graduate Biological Chemistry	3
EXP 5508	Applied Cognitive Psychology	3
EXP 5527	Memory and Consciousness	3
OTH 5524	Adaptation of Human Occupation and Environment for Neuromotor Disorders I	3
OTH 5438	Adaptation of Human Occupation and Environment for Neuromotor Disorder II	3
PCB 5835	Neurophysiology	3

PCB 5835L	Neurophysiology Lab	1
SPA 6410	Aphasia and Related Disorders	3
ZOO 5745	Advanced Neuroanatomy	3

EVR 7322	Methods of Sustainable Resource Management
ECP 6305	Advanced Environmental Economic

Graduation Requirements

The graduate certificate program requires that students maintain a cumulative GPA of 3.0 or higher and earn a "B" or better in all courses counted toward the certificate.

Graduate Certificate in Environmental Studies

Krish Jayachandran, *Director, Earth and Environment*

Coordinating Committee

Mahadev Bhat, *Earth and Environment*

Suzanne Koptur, *Biology*

Rod Neumann, *Global and Sociocultural Studies*

This graduate certificate is an interdisciplinary program focused on various environmental issues that is analogous to the undergraduate Certificate in Environmental Studies. This certificate program is open to degree-seeking students only. It is aimed primarily at graduate students in Politics and International Relations, Economics, and Global and Sociocultural Studies as well as those doing an environmental concentration or track in graduate programs in Tourism, Liberal Studies, Journalism, Education (particularly Parks and Recreation Management), and Latin American Studies. The Certificate Program provides an analytic basis for understanding local, regional and global environmental problems and their solutions.

Certificate Requirements

The Graduate Certificate in Environmental Studies requires 15 graduate credit hours as follows:

Two Core Courses: (6)

EVR 5006	Environmental Science and Sustainability
RLG 5183	Religion, Nature, and Globalization

Three Environmental Electives from the following: (9)

ANG 5267	Environmental Anthropology
SYD 5045	Population and Society
INR 5352	Environment and Security
EVR 5061	South Florida Ecology: Field Studies
EVR 5320	Environmental Resource Management
EVR 5355	Environmental Resource Policy
EVR 6360	Protected Area Management
EVR 6300	Topics in Urban Ecology
EVR 6406	U.S. Endangered Species Management
EVR 6067	Tropical Forest Conservation/Utilization
EVR 6330	Tropical Ecosystem Management
GIS 5050	Environmental GIS
EVR 5935	Special Topics in Environmental Studies
EVR 5907	Research and Independent Study
LEI 5605	Philosophical and Social Basis of Parks and Recreation
HMG 6706	Environmental Management for Tourism
EDF 6766	Education, Environment and Sustainable Future
SYD 6901	Migration and Environment
INR 6056	Environment and Development
LAA 6551	Sustainable Landscapes

Graduate Certificate in Geographic Information Systems

Assefa Melesse, *Director, Earth and Environment*

Coordinating Committee

Zhaohui Jennifer Fu, *Library GIS-RS Center*

Jennifer Gebelein, *Earth and Environment*

Hugh Gladwin, *Global and Sociocultural Studies*

Dean Whitman, *Earth and Environment*

Keqi Zhang, *Earth and Environment*

Xin Jin, *Civil and Environmental Engineering*

A Geographic Information System (GIS) is a set of computer hardware and software used to organize, manipulate, and analyze maps and spatial data. GIS is a rapidly developing technology that can be applied to many areas of the natural sciences, social sciences, engineering, and planning.

The Graduate Certificate in Geographic Information Systems provides students with an interdisciplinary background in GIS. The program consists of graduate level courses in Geographic Information Systems and related subjects offered by the departments of Biology, Civil and Environmental Engineering, Computer Science, Earth and Environment, Global and Sociocultural Studies, Public Administration, and Statistics. This certificate program is open to degree-seeking students only.

For more information, contact the Program Director, Assefa Melesse: phone: (305) 348-6518; email: melessea@fiu.edu, or visit the GIS Center website: <http://gis.fiu.edu>.

Admission Requirements

Applicants must currently be enrolled in a Graduate Degree program at FIU and must exhibit basic proficiency with computers.

Prescribed Courses and Other Requirements

The certificate program will require 15 graduate level credits (5 courses) distributed as follows:

Required Courses: (One course from each of the following 3 categories)

1. Introduction to GIS

CGN 5320	GIS Applications for Civil and Environmental Engineering
GIS 5050	Environmental GIS

Students who demonstrate prior GIS course work or substantial GIS work experience may substitute this requirement with 3 elective credits from the courses listed below with approval of the Program Director.

2. Intermediate/Advanced GIS

CGN 6325	Advanced GIS for Civil and Environmental Engineering
EVR 5044	Advanced GIS and Environmental Data Analysis
GLY 5758	GIS and Spatial Analysis for Earth Sciences
SYA 6356	GIS and Social Research or equivalent

3. Remote Sensing

GLY 5754 Applied Remote Sensing in Earth Sciences or equivalent

Electives: (6 credits out of the following)

CCJ 6079 Geospatial Crime Analysis
 COP 6727 Advanced Database Systems
 EVR 6268 Remote Sensing in Hydrology
 EVR 7056 GIS in Water Resources
 EVR 7329 Watershed Analysis and Management
 GIS 5620 Surveillance, Intelligence, and International Relations
 GIS 5935 Topics in GIS
 MET 5412 Remote Sensing in Meteorology
 PCB 5328 Spatial Ecology
 PAD 6710 IT and E-government
 PAD 6717 GIS Applications for Urban Management or equivalent

or

Additional intermediate/advanced GIS courses under Category 2 Required Courses,

or

Other GIS-related courses approved by the Program Director in consultation with the Coordinating Committee. Up to 3 credits of a graduate level statistics or data analysis course may be counted towards the Certificate requirements with approval of the Program Director.

Graduate Certificate in Marriage and Family Therapy

Lisa Arango, Director, Psychology

The Graduate Certificate in Marriage and Family Therapy offered through the Department of Psychology, is a 15-credit program that offers advanced education and specialized training in Marriage and Family Therapy. The curriculum concentrates on teaching theory, skills, and techniques for conducting therapy with couples and families within multicultural populations. Students will also gain knowledge and understanding of the legal and ethical guidelines in couples and family therapy, and socio-cultural issues that impact families.

The curriculum will fulfill partial educational requirements for licensure as a Marriage and Family Therapist by the Florida Board of Clinical Social Work, Marriage and Family Therapy, and Mental Health Counseling. Courses from this program can also be applied as elective courses for students in the Counseling Psychology Masters Program offered through the Department of Psychology. This certificate program is open to both degree- and non-degree seeking students.

Admission Requirements

Students applying for the Graduate Certificate in Marriage and Family Therapy must meet the following requirements for admission in addition to submitting the application:

1. Hold a bachelors degree or equivalent from an accredited college or university;
2. Have a minimum GPA of 3.0 on a 4.0 scale during the last two years of upper division coursework;
3. Statement of intent;
4. Two letters of recommendation;
5. Current resume; and
6. Official academic transcript.

Program Requirements

The graduate certificate program requires that students maintain a GPA of 3.0 or higher for successful completion of the program and earn a "B" or better in all courses of the certificate.

Semester I

PCO 5251 Couples and Family Systems 3

And one of the following:

PCO 5750 Contemporary Issues in Family Life and Process 3
 CYP 6766 The Psychology of Crosscultural Sensitization in a Multicultural Context 3

Semester II

PCO 5253 Theory and Techniques in Family Therapy 3
 PCO 5252 Theory and Techniques in Couples and Marital Therapy 3

And one of the following:

PCO 6254 Principles and Practices in Couples and Family Therapy 3
 LAW 6710 Family Law 2-3

Graduate Certificate in Mathematics

Svetlana Roudenko, Director, Mathematics and Statistics

Coordinating Committee

Gueo Grantcharov, Mathematics and Statistics

Zhongming Wang, Mathematics and Statistics

Yanqiu Guo, Mathematics and Statistics

The Graduate Certificate in Mathematics offers advanced training to those seeking to prepare themselves to teach college-level. This certificate requires 18 credits of graduate mathematics courses and fits well within the graduate programs of the Department of Mathematics and Statistics. It will give unique opportunities to the students to enrich and deepen their understanding of advanced mathematics. This certificate program is open to both degree and non-degree seeking students.

Admission Requirements

The Admission into the program requires the following:

1. An MS degree in a related discipline such as Math Education, Statistics, Physics, Economics;
2. Successful completion of undergraduate courses such as Multivariable Calculus, Differential Equations, Linear Algebra; and
3. Approval of the Certificate Committee.

Certificate Requirements

The 18 credits required for the certificate include any graduate mathematics course offered by the Department of Mathematics and Statistics. The following courses are recommended:

MAD 5405 Numerical Methods 3
 MAP 5255 Mathematical Scientific Computation 3
 MAP 5316 Ordinary Differential Equations 3
 MAP 5317 Advanced Differential Equations for Engineers 3
 MAS 5145 Applied Linear Algebra 3
 MAP 5204 Optimization and Linear Algebra 3

Graduate Certificate in Water, Environment and Development Studies

Assefa M. Melesse, Chair, Earth and Environment

Coordinating Committee

Shlomi Dinar, Politics and International Relations

Janvier Gasana, Environmental and Occupational Health

René Price, Earth and Environment

Mike Sukop, Earth and Environment

The goal of the Graduate Certificate in Water, Environment, and Development Studies is to provide students with a multidisciplinary education in the occurrence, characteristics, and management of water resources in South Florida and internationally. Students will learn about the natural occurrence and dynamics of surface and ground water, the key biological and chemical factors affecting water resource quality, and the fundamental linkages between water and development. The graduate certificate program promotes an integrated understanding of the theoretical and practical elements of water resources management. This certificate program is open to degree-seeking students only.

Certificate Requirements

The Graduate Certificate Program requires the successful completion of 15 credit hours of graduate course work. Students must maintain an average GPA of 3.0 or above and must earn a "C" or above in all courses counting toward the certificate. All students in the program are required to take one foundation course and at least one course from both the natural science and social science lists below. The remaining 6 credits may be satisfied with any combination of approved courses listed below. Additional courses may be considered with the approval of the Certificate Chair.

Required Foundation Course

EVR 5332	Integrated Solutions for Water in Environment and Development	3
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Natural Science, Engineering, and Public Health Courses

(all students must take at least one)

PCB 4301	Freshwater Ecology	3
EVR 5219	Water Resources Assessment	3
EVS 5145	Ecotoxicology	3
GLY 5245	Water-Rock Interaction	3
GLY 5266	Stable Isotope Biogeochemistry	3
PCB 5307	Limnology	3
ISC 6153	Environments of a Changing Planet	3
GLY 5827	Hydrogeology	3
BOT 5406	Algal Physiology	3
ENV 5517*	Design of Wastewater Treatment Plants	3
ENV 5666*	Water Quality Management	3
GLY 5754	Applied Remote Sensing in the Earth Sciences	3
CHM 5765	Aquatic Chemistry	3
GLY 5826	Hydrogeologic Modeling	3
GLY 5827	Hydrogeology	3
GLY 5828	Chemical Hydrogeology and Solute Transport	3
EVR 5905	Independent Study	3
	(or any other independent study from other departments)	

EVR 7056	GIS in Water Resources	3
CWR 5125	Groundwater Hydrology	3
CHM 6340*	Organic Geochemistry	3
CWR 5140C*	Ecohydrology	3
ENV 6615	Environmental Impact Assessment	3
GLY 6896	Advanced Topics in Hydrology	3
EVR 7329	Watershed Analysis and Management	3
EVR 6268	Remote Sensing in Hydrology	3
EVR 5069	Wetland Ecology and Management	3

*Engineering graduate courses are offered for graduate students with a relevant engineering background or other students meeting needed prerequisites and applicable criteria. Students must confirm their eligibility, in advance to any registration, with either the Civil and Environmental Engineering Graduate Program Director and the responsible instructor.

Social Science and Public Health Courses

(all students must take at least one)

CPO 5036	Politics of Development	3
SYD 5045	Population and Society	3
INR 5352	Environment and Security	3
EVR 6377	Nat Resource Conservation & Policy	3
ANG 5267	Environmental Anthropology	3
INR 5409	International Law I	3
SYP 5447	Development and Post-Development	3
INR 5507	International Organizations	3
INR 5607	International Relations and Development	3
INR 6056	Environment and Development	3
SYD 6236	International Migration and Refugees	3
PHC 6315	Introduction to Environmental Health Sciences	3
EVR 7322	Methods of Sustainable Resource Management	3
PHC 6410	Health Behavior and Public Health	3
PHC 6425	Legal and Regulatory Aspects of Environmental Health	3
PHC 6520	Public Health Aspects of Foodborne Diseases	3
PHC 6115	Global Perspectives of Env Health in the Caribbean and Latin America	3

Seminar Requirements

Students are expected to attend at least five seminars during each semester that they are enrolled in the Certificate Program. Early in each semester, students will be provided with a schedule of water-related seminars offered in departments across campus. The departments of Biology, Chemistry and Biochemistry, Civil and Environmental Engineering, Earth and Environment, Environmental and Occupational Health, Global and Sociocultural Studies, and Politics and International Relations each sponsor seminar series that commonly include water-related topics.

Students are also required to give a presentation on a water-related theme in a departmental seminar or professional conference.

Graduate Certificate in Women's and Gender Studies

Yesim Darici, Director, Center for Women's and Gender Studies and Professor of Physics

Victoria Bums, Instructor, Women's and Gender Studies

Michaela Moura-Koçoğlu, *Instructor, Women's and Gender Studies*

RLG 5144 Women and Religion
SYD 5708 Advanced Race, Gender, Sexuality:
Entanglements Across Time and Space

The Women's and Gender Studies Graduate Certificate provides students the opportunity to integrate scholarship about women and gender differences into a coherent program of graduate study, i.e., for a Masters and Ph.D. in a variety of disciplines or as a free standing program of graduate study. This certificate program is open to both degree and non-degree seeking students. For more information, please visit our website at: <http://cwgs.fiu.edu/>

For more options, please see our current full list of approved courses on our website: <http://cwgs.fiu.edu/>.

Students may apply up to three credit hours of thesis or dissertation research to the certificate if the research has a prominent focus on women and gender.

Certificate Requirements

Eligibility

- 1) All graduate students in an M.A. or Ph.D. program at FIU are eligible to apply to this program. The Women's and Gender Studies Center encourages graduate students from all colleges to participate.
- 2) Students with a Baccalaureate degree from an accredited university may be admitted to the graduate certificate program as a non-degree seeking student.
- 3) Undergraduate students in their senior year may take graduate level courses to complete their graduate certificate as a post-baccalaureate certificate.

Admissions Requirements

Students applying for the Graduate Certificate in Women's and Gender Studies must meet the following requirements for admission in addition to submitting the application:

- 1) Hold a bachelor's degree or equivalent from an accredited college or university;
- 2) Have a minimum GPA of 3.0 on a 4.0 scale during the last two years of upper division coursework;
- 3) Statement of intent;
- 4) Current resume;
- 5) Official academic transcript.

Certificate candidates must complete a total of 15 credit hours at the **5000 level or higher**. Students must maintain an average GPA of 3.0 or above and must earn a "C" or above in all courses counting toward the certificate. **6** credit hours from the core requirements + **9** credit hours from the list of graduate level electives = 15 credit hours:

Core Requirements (6 credits)

Choose two of the following courses of from any other graduate level WST courses:

WST 5507	Feminist Theory
WST 5935	WST Special Topics
WST 5946	Women's Studies Internship
WST 5936	Women and Leadership
WST 5905	Independent Study

Graduate Level Electives (9 credits)

Choose from approved list of graduate level Women's and Gender Studies electives. These include:

EDH 6050C	Women in Higher Ed
EDH 7931	Seminar on Class, Gender, and Race in Higher Ed
INR 5088	Feminism and IR
LBS 5155	Workplace Diversity
LBS 5215	Women in the Workplace
POT 5307	Feminist-Political Theory
RLG 5184	Sexuality, Religion and Social Change
RLG 5435	Feminist Theory and Religion