Department of Political Science and Geography
7022 Batten Arts and Letters Building
757-683-3849
Dr. Jonathan Leib, Chair
Dr. Glen Sussman, Chief Departmental Advisor

Certificate in Spatial Analysis of Coastal Environments
Hua Liu, Graduate Certificate Program Director

The certificate in spatial analysis of coastal environments provides an interdisciplinary program for students wishing to pursue careers in coastal management or research, remote sensing, or geographic information system (GIS) applications. Rendered upon completion of the requirements, the certificate is an academic affidavit comprised of courses in geography and ocean, earth, and atmospheric sciences, and is administered by the two departments. The certificate is available to postgraduate professionals who meet the requirements. Students with comparable professional experience may be able to show competence in selected courses through examination. For information regarding the undergraduate certificate in Spatial Analysis of Coastal Environments, please consult the undergraduate catalog.

Curriculum Requirements:
Students must take 15 credit hours in the areas listed below and complete them with a cumulative GPA of 3.00 or higher and no grade below a B (3.00).

Core courses: 6
- GEOG 504 Digital Techniques for Remote Sensing
- GEOG 562 Advanced Spatial Analysis

Interpretive Analysis Courses: 6
Select two of the following:
- GEOG 522 Coastal Geography
- GEOG 520 Marine Geography
- BIOL 504 Conservation Biology
- GEOG 590 Applied Cartography/GIS *
- OEAS 595 Special Topics *
- GEOG 595 Topics in Geography *

Capstone Seminar: 3
- GEOG/OEAS 519 Spatial Analysis of Coastal Environments

Total Hours: 15
* Advanced approval required to count toward the certificate.

Certificate in Geographic Information Science
Hua Liu, Graduate Certificate Program Director

The graduate certificate in geographic information science provides knowledge and tools for students and professionals pursuing careers in geographic information systems (GIS) and related spatial technologies. The certificate is an affidavit of academic proficiency in GIS and related areas such as remote sensing, global positioning systems, cartography, and spatial data analysis. This certificate is designed for graduate students and professionals employed in geographic information science fields. The certificate is available to postgraduate professionals who meet the requirements. Students with comparable professional experience may be able to show competence in selected courses through examination.

For information regarding the undergraduate certificate in Geographic Information Science, please consult the undergraduate catalog.

Admission Requirements
Submission of:
- Graduate Record Examination (GRE) scores; no minimum score required—results represent one factor considered for admission;
- Official transcripts of all undergraduate and prior graduate coursework;
- Two letters of recommendation addressing the candidate's capacity to undertake graduate work in geographic information science;
- An essay of not more than 500 words describing interest in and capacity for advanced training in geographic information science; and
- One example of writing or research (a paper submitted to a seminar, a publication or report, or another comparable example).

Curriculum Requirements
Students must take 18 credit hours in the areas listed below and complete them with a cumulative GPA of 3.00 or higher and no grade below a C (2.00) for undergraduate students or B (3.00) for graduate students.

Core Courses: 9
- GEOG 502 Geographic Information Systems
- GEOG 504 Digital Techniques for Remote Sensing
- GEOG 508 Cartography

Elective Courses: 9
- GEOG 519 Spatial Analysis of Coastal Environments
- GEOG 525 Internet Geographic Information Systems
- GEOG 532 Advanced GIS
- GEOG 590 Applied Cartography/GIS
- GEOG 595 Topics in Geography or GEOG 596 Topics in Geography
- GEOG 697 Independent Research in Geography *

Total Hours: 18
* Advanced approval required to count toward the certificate.

GEOGRAPHY Courses
GEOG 500, Seminar in Geography. 3 Credits.
Advanced study of a specialized topic in geography. The choice of the topic may vary according to the availability of faculty expertise and student interest.

GEOG 502, Geographic Information Systems. 3 Credits.
A study of the conceptual basis of GIS as a tool for manipulating spatial information. The course focuses on how geographic information can be input and organized within the framework of a GIS. Students will work on a computer-based GIS to gain a greater understanding of spatial database structures and analytical operations.

GEOG 504, Digital Techniques for Remote Sensing. 3 Credits.
Study of the theory and application of remote sensing, emphasizing environmental applications and aerial and satellite imagery. Covers the fundamentals of multispectral digital image processing, including sensors pre-processing, enhancement, classification, accuracy assessment, and GIS data integration.

GEOG 505, Seminar in International Resource Management. 3 Credits.
Discussion of the ecological and management principles underlying international resource management and the goal of attaining a sustainable, ecologically balanced world.

GEOG 508, Cartography. 3 Credits.
Computer-assisted methods and techniques employed in design, construction, and use of maps and other graphics as tools for data analysis and communication.
GEOG 510. Seminar in Urban Geography. 3 Credits.
Discussion of specific urban and metropolitan problems based on outside readings and individually selected research topics.

GEOG 511. Urban and Regional Planning. 3 Credits.
A study of planning concepts and powers used to guide contemporary metropolitan growth and development. Emphasis is on the application of social science principles and methods to the planning process.

GEOG 512. Cities of the World. 3 Credits.
An examination of cities of the world's major cultural realms with an emphasis on the urban landscape as it varies between developed and developing countries.

GEOG 517. GIS for Planning and Public Policy. 3 Credits.
Geographic Information Systems (GIS) and science are an essential tool for urban planners and policy makers who have special interests in places and who need this kind of knowledge for decision making. The purpose of this course is to teach students the foundations of GIS and how it is applied in urban planning and other related disciplines. The course combines lectures, discussion of readings, and hands-on exercises in the computer lab. Prerequisites: GEOG 402 or GEOG 502 or permission of the instructor.

GEOG 519. Spatial Analysis of Coastal Environments. 3 Credits.
The course integrates remotely sensed and field techniques for scientific investigation and practical management of coastal environmental systems. Spatial modeling of coastal processes and management tools using Geographic Information System (GIS). Prerequisites: GEOG 504.

GEOG 520. Marine Geography. 3 Credits.
An analysis of human-sea relationships with particular emphasis on resource management and political organization from global, regional, and national perspectives.

GEOG 522. Coastal Geography. 3 Credits.
An examination of the physical and human geography of the coastal zone. Considers problems of managing coastal resources with an emphasis on North America. Lectures focus on coastal patterns, processes, and problems at the global, national, and local scales. Students investigate a section of the local coastline and write a report on the physical and human geography on the basis of field study, library, and internet research.

GEOG 524. Weather, Climate, and Society. 3 Credits.
Weather and climate play a pivotal role in nearly every aspect of life. How does temperature relate to health outcomes? What impact does El Niño have on Peruvian farmers? How is the issue of climate change reflected in national security policy? Why? Topics also include the energy balance equation, remote sensing techniques, and climatological data acquisition and analysis. Beyond an understanding of the complex processes that dictate the flow of the atmosphere, the course analyzes the socioeconomic, political, and cultural perspectives of climate and weather. The course also provides a framework for stewardship and responsibility to the future. Prerequisites: GEOG 100S, 101S, or permission of the instructor.

GEOG 525. Internet Geographic Information Systems. 3 Credits.
Theoretical and practical exploration of methods, standards, and policies related to the development and utilization of geographic information systems on the Internet. Students will create and utilize distributed geospatial data and analytical systems using the WWW and the Internet to address geographical problems. Prerequisites: GEOG 502.

GEOG 532. Advanced GIS. 3 Credits.
The study of a series of advanced topics in the field of geographic information systems/science. Focus is placed on the development of projects/models and a survey of several advanced techniques. Students will work on a computer based GIS to implement topics from lectures. Prerequisites: GEOG 502.

GEOG 546. Geography, Gender, and Sexuality. 3 Credits.
This course examines gender identity and sexuality in all of their diverse forms through a lens of human geography, such as metaphors of space and place, the cultural landscape, and 'mapping territory.' Topics explored include global gender identities; 'queer space; 'locating' gender and sexuality within the arts and tourism; the gendered citizen and the nation; and political economies of gender and sexuality.

GEOG 551. Europe. 3 Credits.
A geographical analysis of the interrelationships among physical, cultural, economic, and political factors in Europe.

GEOG 552. Africa. 3 Credits.
A geographical analysis of the interrelationships among physical, cultural, economic, and political factors in Africa.

GEOG 553. Asia. 3 Credits.
A geographical analysis of the interrelationships among physical, cultural, economic, and political factors in Asia excluding the Middle East and the former USSR.

GEOG 554. Latin America. 3 Credits.
A geographical analysis of the interrelationships among physical, cultural, economic, and political factors in Latin America.

GEOG 555. The Middle East. 3 Credits.
A geographical analysis of the interrelationships among physical, cultural, economic, and political factors in the Middle East.

GEOG 558. Geography of Virginia. 3 Credits.
An analysis of Virginia's population, resources, and regional landscapes as they have been influenced by physical, cultural, historical, and economic factors.

GEOG 560. Medical Geography. 3 Credits.
The course covers a range of topics in medical and health geography, including spatial behaviors of infectious disease and health care access. The focus of the course is on the geographical patterns of health and disease from the population rather than individual scale. In addition to seminar style lectures and discussions, the course enables students to further investigate by learning how to conduct medical/health geography research.

GEOG 562. Advanced Spatial Analysis. 3 Credits.
This course introduces the essential theoretical concepts and analytical tools for analyzing spatial process, spatial autocorrelation, spatial patterns, techniques for spatial interpolation, network connectivity, big data, and landscape patterns. The course culminates with students carrying out their own spatial analysis projects. This course assumes that students understand the basic concepts in GIS with some experience in software operation of ArcGIS. Prerequisite: GEOG 402 or GEOG 502, or permission of the instructor.

GEOG 564. Advanced Environmental Geography Seminar. 3 Credits.
The objective of the course is to provide students with a deeper understanding of the current concepts and debates in environmental geography. By exploring the ethical and philosophical foundations of the field, the course considers the environment’s opportunities and constraints. While topics may include climate change, agricultural security, and renewable energy, the course will be driven by student-led discussions and participation. Critically thinking about complex phenomenon, the seminar will include various weekly readings, discussions, and writing assignments.

GEOG 573. Geographic Information Systems for Emergency Management. 3 Credits.
Students will demonstrate advanced skills and techniques using spatial data to prevent, mitigate, respond to, and recover from intentional, natural, and accidental homeland security threats and emergencies. This course demonstrates the importance of rapidly disseminating spatial information towards the prevention and response of various organizations to homeland security events. This course will provide students with the tools and experience required to collect, prepare and manage spatial data and enable students to be prepared to map and analyze the data to quickly and effectively create a coordinated response to real homeland security events.

GEOG 575. Urban Resilience. 3 Credits.
This course examines the multifaceted interface of built and natural environments and their impacts on land use management at spatial and temporal scales. It evaluates the impact of population pressure on sustainability through a survey of urban areas and analyzes urban planning and management capacities to maintain resilience despite environmental and technological hazards. Prerequisites: GEOG 100S, 101S, or equivalent or permission of the instructor.
GEOG 590. Applied Cartography/GIS. 1-3 Credits.
Practical experience in applying the principles of cartography and geographical information systems to the design and construction of maps and other graphics.

GEOG 595. Topics in Geography. 1-4 Credits.
The advanced study of selected topics which, due to their specialized nature, may not be offered regularly. These courses will appear in the course schedule, and will be more fully described in information distributed to academic advisors.

GEOG 596. Topics in Geography. 1-4 Credits.
The advanced study of selected topics which, due to their specialized nature, may not be offered regularly. These courses will appear in the course schedule, and will be more fully described in information distributed to academic advisors.

GEOG 597. Independent Research in Geography. 1-3 Credits.
Independent reading and study on a topic to be selected under the direction of the instructor. Conferences and papers as appropriate.

GEOG 598. Tutorial Work in Geography. 1-3 Credits.
Independent research under the supervision of a faculty member.

GEOG 620. Seminar in Political Geography. 3 Credits.
A study of the interrelationships of political and geographic phenomena, and theories of geopolitics; examines in a seminar format the political geography of both of specific topics such as the national integration of states, refugees and resources, and of particular regions of the world.

GEOG 625. Ethno-Regionalism. 3 Credits.
An examination of the geopolitics of world ethnic minorities with special reference to selected "trouble spots" on the world political map.

GEOG 626. Lifespan Communication, Geography, and Food. 3 Credits.
This course examines the intersections of communication, geography, and food from lifespan and global perspectives. Topics to be covered include communication and cooking; dinner table talk; food and folk culture; victual rituals; the portrayal of food in media (e.g., film, television, CMC, print); the role of race, class, and gender in food production/consumption; the commercialization of food; fast food and slow food; globalization vs. the 'locavore' movement; visualization and symbolic communication about food and nutrition; and market and supermarket geographies.

GEOG 650. Seminar in Regional Geography. 1-3 Credits.
Advanced seminar on a particular country or world region.

GEOG 668. Internship. 1-6 Credits.
Individualized practical experience.

GEOG 695. Selected Topics in Geography. 1-3 Credits.
Advanced study of selected topics designed to permit small groups of qualified students to work on subjects of mutual interest.

GEOG 696. Selected Topics in Geography. 1-3 Credits.
Advanced study of selected topics designed to permit small groups of qualified students to work on subjects of mutual interest.

GEOG 697. Independent Research in Geography. 1-3 Credits.
Independent research in geography under the supervision of a faculty member.

GEOG 720. Cultural Geography Seminar. 3 Credits.
This seminar examines the field of cultural geography with: 1) an emphasis on theories and concepts developed over the past twenty years in 'new' cultural geography, and 2) cultural geography's emphasis on issues such as place, power, landscape and identity.

POLITICAL SCIENCE Courses

POLS 503. First Amendment Freedoms. 3 Credits.
The course deals with the development and practice of conflicting judicial and legal theories concerning our substantive guaranties. Students are asked to act as advocates in developing and substantiating theories of their own.

POLS 510. African American Politics. 3 Credits.
This course examines the political development of Black people in the United States by focusing on the relationship and processes of the American political system. The political dynamics of Black political thought, the Civil Rights Movement, and Black protest politics are also analyzed.

POLS 512. Politics of the Civil Rights Movement. 3 Credits.
Examines the political activities which resulted in the passage of the nation's second Civil Rights policy, the 1960 and 1964 Civil Rights Acts, the 1965 Voting Rights Act and the 1968 Fair Housing Act. The course analyzes the underpinnings, leadership, and political strategies of the Civil Rights Movement.

POLS 514. Politics of Education. 3 Credits.
The question of power, often ignored by education policy analysts and researchers, is a principal focus of this seminar. Issues ranging from the role of education in political socialization and the politics of affirmative action and equal opportunity are examined.

POLS 515. Women and Politics in America. 3 Credits.
Examines women's place in political theory and the practice of politics in the United States. A major focus is to trace the development of women's political rights, the impact of public policy on the lives of American women and to see how women influence and participate in the political process.

POLS 520. Southern Politics. 3 Credits.
This seminar focuses on the politics of the American South from the 1940s to the present. Emphasis is on introducing students to contrasting explanations and analysis about the politics of the American South.

POLS 521. International Law. 3 Credits.
Surveys major areas of public international law (e.g., laws of warfare, law of the sea, conflict resolution, etc.). Emphasizes the relationship between international law and international politics.

POLS 524. International Organization. 3 Credits.
Course provides a basis for understanding the role and importance of international organizations in contemporary international relations. Focuses on development and history of global organizations, with particular emphasis on the United Nations, and regional and functional organizations.

POLS 534. Political Participation in the United States. 3 Credits.
An examination of current theories and research on political behavior, conventional and unconventional modes of political participation, and the impact of participation on the political system.

POLS 535. Chinese Politics. 3 Credits.
A study of origins of the Chinese revolution; development and functions of the Chinese Communist Party; government institutions; the defense establishment; evolution of foreign policy; and post-Mao political and economic reforms.

POLS 537. International Relations in East Asia. 3 Credits.
A study of contemporary issues (political, economic, and strategic) in the East Asia area; the interactions of China, Japan, the United States, and the former Soviet republics in East Asia.

POLS 538. Law in Literature and Film. 3 Credits.
Students will study law as seen through the lens of fiction. Assignments draw heavily from classic and contemporary novels, short stories, plays, films, and perhaps television. As these artistic representations of law in action are explored, short theoretical readings help focus on questions of philosophy, politics, and justice. The course also explores the relationship between fiction and reality through appellate opinions and contemporary literature on the American legal system. The goal is to come to a better understanding of the potential blessings, dangers, and limitations of law.

POLS 539. International Relations of African States. 3 Credits.
This course aims to expose students to an examination of the workings of international politics from the viewpoint of Africans and African states. International relations have tended to look at the world from the viewpoint of its most powerful states. Yet, most of the world's states - notably in Africa - are weak but have great potential global impact.
POLS 542. Twentieth Century Dictatorships. 3 Credits.
A study of the Fascist, Nazi, Stalin and Mao regimes and the forces that brought them to power and sustained them, including a study of the impact of their policies on their people and neighboring states.

POLS 555. The Politics of Climate Change. 3 Credits.
An examination of the science of climate change and how United States political actors have responded to this global environmental challenge.

POLS 566. Politics of the Middle East. 3 Credits.
An analysis of the political processes throughout the region and in selected nations of the Middle East. Topics to be discussed include inter-Arab relations, the Arab-Israeli conflict, the Iran-Iraq rivalry and foreign power involvement in the Middle East.

POLS 595. Topics in Political Science. 1-3 Credits.
The advanced study of selected topics which, due to their specialized nature, may not be offered regularly.

POLS 596. Topics in Political Science. 1-3 Credits.
The advanced study of selected topics which, due to their specialized nature, may not be offered regularly.

POLS 597. Independent Research in Political Science. 1-3 Credits.
Independent research in political science under the supervision of a faculty member.

POLS 602. Seminar in American Foreign Policy. 3 Credits.
The formulation and conduct of U.S. foreign policy under changing domestic and external circumstances. Models of decision making; interrelationships of economic, political, and military factors; major trends in contemporary American foreign policy making.

POLS 623. Foreign Policy Analysis. 3 Credits.
Comparative study of foreign policy behavior. Internal and external factors in formation and implementation of foreign policy. Examination and application of foreign policy models.

POLS 624. National Security Policy. 3 Credits.
Examines U.S. national security policy, strategy and the use of force, the formulation and execution of policy, the international dimension of national security, and contemporary issues in national security.

POLS 626. Seminar in Politics of Russia and the Soviet Successor States. 3 Credits.
Power and authority in Russia and the other successor states of the former Soviet Union. Although focusing on Russia, the course embraces the contemporary internal politics of the states in the space between Germany and Japan/China including Central Asia and the Caucasus. Emphasizes research methodology and strategies.

POLS 631. Seminar in Chinese Politics. 3 Credits.
An advanced survey and research on contemporary Chinese politics, political and economic reforms; intellectuals and politics; China's experience of socialist revolution and economic construction; and foreign policy.

POLS 650. Interdependence, Power and Transnationalism. 3 Credits.
This course covers the fundamental concepts, ideas, and approaches to the study of interdependence and transnationalism. It seeks to expose students to the nature, role, and impact of economic, technological, strategic, and cultural interdependence. Cases of interdependence and transnationalism are explored in the post-Cold War era. Some focus is placed on how interdependence and transnationalism are impacting the power of the state. Prerequisites: Permission of director or instructor.

POLS 665. International Political Economy. 3 Credits.
Analysis of the forces shaping national and transnational economic institutions and their policies on a range of contemporary issues, including North-South relations.

POLS 695. Selected Topics in Political Science. 1-3 Credits.
The advanced study of selected topics which, due to their specialized nature, may not be offered regularly.

POLS 696. Selected Topics in Political Science. 1-3 Credits.
The advanced study of selected topics which, due to their specialized nature, may not be offered regularly.