prepares an oral and a written report on the work (either alone or within an investigative team), addressing a technologically based problem and developing alternative solutions.

ISAT 495. Technology in our World: Better by Design. 3 credits. Students explore the importance of design in technology and engineering and contrast the design process with the scientific method. This includes evaluating functional requirements, ergonomics, usability, cost, risk, and environmental impact. Students complete a design project integrating these factors to address a real-world problem. Prerequisite: Completion of IDS core science course work.

ISAT 499A. Senior Honors Thesis I. 1 credit. First course of a three-course sequence. Student generates an idea for and writes a proposal for an independent research project that meets the requirements set forth by the Honors program. Student must identify and analyze a science- or technology-based problem (broadly defined), identify potential solutions, recommend an approach, and prepare a written proposal. Equivalent to ISAT 491 for ISAT department credit.

ISAT 499B. Senior Honors Thesis II. 2 credits. Second course in a three-course sequence. Student begins the research necessary for an independent research project that meets the requirements set forth by the Honors program. Student pursues the approach described in his or her proposal from ISAT 499A. Fullfills same requirements as ISAT 492.

ISAT 499C. Senior Honors Thesis III. 3 credits. Third course in a three-course sequence. Student completes the research for and prepares an oral and written presentation of their results for an independent research project that meets the requirements set forth by the Honors program. Student completes and presents (in written and oral form) the project described in his or her proposal from ISAT 499A. Fullfills same requirements as ISAT 493.

Intelligence Analysis

IA 200. Introduction to National Security Intelligence. 3 credits. Intelligence analysis is a complex, dynamic process that includes determining the intelligence needs, data collection, pre-processing, analysis and production of the customer’s product. This is an introduction to the history, structure and practices of the national security intelligence community (IC). The course is team-oriented, project-based and grounded in the relevant legal and ethical context.

IA 210. Introduction to Global Competitive Intelligence. 3 credits. This course will focus on global competitive intelligence (CI): the tools and methods that enhance strategic and tactical decision making in the analysis and interpretation of business data related to current and emerging competitors. The course is team-oriented, project-based and grounded in the relevant legal and ethical context. Not open to students in the College of Business. Prerequisites: Grades of “C” or better in IA 200, IA 261 and ISAT 252. Not open to students pursuing a major or minor in CIS. Not open to any major in the COB other than international business.

IA 240. Technology Applications in a Networked World. 3 credits. Students develop broad technical competencies of current and future technology applications, such as databases, spreadsheets and Internet-of-things. They explore technical-socio-ethical aspects of the cyber world. This hands-on and team-based course supports development of working technical knowledge for accessing, evaluating, modeling and analyzing information and data for problem solving. Students develop a systematic appreciation of computing, network and cyber security. Prerequisite: Sophomore standing as an IA major or permission of instructor.

IA 241. Introduction to Programming and Data Science. 3 credits. The course introduces students to data analysis through computer programming. The course will focus on key elements from data science that are critical to the intelligence analyst such as manipulating, processing, cleaning and crunching data. The course will serve as a practical, modern introduction to scientific computing in Python, tailored for data-intensive applications. This course will introduce the Python language and libraries students need to effectively solve a broad set of data analysis problems. The course is hands-on and places emphasis on practical case studies with a broad scope of techniques useful for the data analyst. Prerequisite: IA 240.

IA 261. Hypothesis Testing. 3 credits. Examines hypothesis testing in national, military, counter, and competitive intelligence. By comparing alternate theories in terms of their explanatory power and predictive success, students will learn the most relevant methods for integrating facts into unified theories, assessing theories, and properly qualifying and reevaluating theories to compensate for risk and uncertainty.

IA 280. Selected Project in Intelligence Analysis. 3 credits. This course will examine projects of interest to lower-division students in intelligence analysis not otherwise offered in regular course offerings. They are offered only with the approval of the program director and they may be repeated when course content changes. Students should consult with the instructor prior to enrolling in the course. Prerequisite: Junior standing.

IA 312. Causal Analysis. 3 credits. Examines causal analysis in national, military, counter and competitive intelligence. By assessing a factor’s amount and kind of efficacy, students will learn the most reliable methods for distinguishing between relevant/irrelevant events and factors, identifying and excluding “pseudo-causes,” and anticipating higher order effects of a causal process. Prerequisites: Grades of “C” or better in IA 200, IA 261 and ISAT 252.

IA 313. Counterfactual Reasoning. 3 credits. Examines counterfactual reasoning in national, military, counter and competitive intelligence. By analyzing alternate scenarios and their consequences, students will learn the most relevant methods for employing creative thinking in generating, developing, and assessing possibilities; substituting “after-action” reports, and structuring futures analysis. Prerequisite: IA 312.

IA/PHIL 314. Strategy Assessment (Rational Decision Theory). 3 credits. Examines strategy assessment in national, military, counter, and competitive intelligence. By applying probabilities and goals to potential threats and opportunities (short and long-term), students will learn the most relevant methods for formulating and evaluating possible courses of action, and projecting and explaining actions by assessing agents’ strategic interests and circumstances. Prerequisite: IA 313.

IA 340. Data Mining, Modeling and Knowledge Discovery. 3 credits. Data mining is the nontrivial extraction of previously unknown and potentially useful information from (large) data sets to help explain current behaviors and anticipate future outcomes. Students will apply data mining and knowledge discovery methods to data sets from business, industry and government. The course is team-oriented, project-based and grounded in the relevant legal and ethical context. Prerequisites: Grades of “C” or better in ISAT 252, IA 200 and IA 261.

IA 341. System Dynamics Modeling, Simulation and Analysis. 3 credits. System dynamics analysis is a perspective and a set of conceptual and computing tools to help us understand the structure and dynamics of complex systems. This course will apply system dynamics analysis to complex systems (problems) that involve the interplay of physical and social-political factors. The course is team-oriented, project-based and grounded in the relevant legal and ethical context. Prerequisite: IA 312.

IA 342. Visualization Methods, Technologies and Tools for Intelligence Analysis. 3 credits. Data visualization presents laboratory or simulation data or the results from sensors out in the field in a way that aids reasoning about and hypothesis building in complex data sets. This course will apply data visualization technologies and tools to timely data sets from business, industry and government. The course is team-oriented, project-based and grounded in the relevant legal and ethical context. Prerequisites: ISAT 251 and ISAT 252.

IA/REL 363. Apocalypticism, Religious Terrorism and Peace. 3 credits. This course traces apocalypticism from its ancient Jewish and Christian roots to its contemporary manifestations in religious groups around the world. Since apocalypticism is a worldview that cuts across religious traditions, the course covers a variety of religious groups. The last half of the course focuses on the complex relationships between apocalyptic thinking and religious terrorism and entails an independent research project.

IA 400. Cognitive Science and Intelligence Analysis. 3 credits. Cognitive science examines a wide range of mind/brain processes, including thinking, learning, language acquisition, pattern recognition, memory, creativity, volition, etc. This course will take an information processing systems approach to study cognitive processes that comprise intelligence analysis. The course is team-oriented, project-based and grounded in the relevant legal and ethical context. Prerequisite: IA 314.

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IA 405. Ethics, Law and Intelligence Analysis. 3 credits.
This course will examine ethical and legal issues raised in the practice of intelligence analysis. It will draw on philosophical ethical theories and reasoning to explicate these issues addressed, and will explore the relevant constitutional and other legal constraints on the practice of intelligence analysis, particularly issues of information privacy, civil liberties and limitations on government action. Prerequisite: IA 314.

IA 440. Seminar in Intelligence Analysis. 3 credits.
This course will focus on important issues in the theory and practice of intelligence analysis as the basis for implementing team projects in the IA Capstone Seminar. Students will individually identify, analyze, plan and report on a feasible capstone seminar project. Students will then organize teams and develop plans to complete a subset of the most promising projects in the Capstone Seminar. Prerequisites: Senior standing in the IA program and IA 314.

IA 450. Capstone Project in Intelligence Analysis. 3 credits.
Building on the Seminar on Issues in Intelligence Analysis students will complete and present solutions for team-based intelligence community or competitive intelligence IA projects. Students will produce written and oral technical reports/briefs of their results. Prerequisite: IA 440.

IA 459/ISAT 459. Awareness and Understanding of Chemical, Biological and Radiological Weapons of Mass Destruction. 3 credits.
This course introduces awareness, science and societal impact of weapons of mass destruction (WMD) agents. Students study the development of vaccines and therapeutic and diagnostic drugs used in the detection and treatment of these agents. The course consists of lectures and safety training sessions that introduce tactical and logistical techniques used against chemical, biological and radiological WMD. Prerequisite: Basic chemistry and/or biology.

IA 460. All Hazards Response And Management Systems. 3 credits.
Incident Command Systems enables incident management by integration of facilities, equipment, personnel, procedures, and communications operating in a common organizational structure. ICS is used to organize near and long-term operations for a spectrum of emergencies, small to complex incidents, natural and man-made. ICS is used by government, many private and nongovernmental organizations in 5 major functional areas: command, operations, planning, logistics, and finance and administration.

IA 480. Selected Topics in Intelligence Analysis. 3 credits.
This course will examine topics of interest to upper-division students in intelligence analysis not otherwise offered in regular course offerings. They are offered only with the approval of the program director and they may be repeated when course content changes. Students should consult with the instructor prior to enrolling in the course. Prerequisites: Junior standing.

IA 499A. Honors Thesis I. 1 credit. Spring only.
This is an honors thesis proposal course. It is the first of the three-course sequence intended to satisfy the requirements for the honors program as well as the Intelligence Analysis program. Students will develop a thesis proposal, including objectives, audience, literature review, timeline and deliverables. The goal of the course is for the student to develop a compelling and complete senior thesis proposal. Prerequisite: Junior standing; must be in the honors program.

IA 498B. Honors Thesis II. 3 credits. Fall only.
This is an honors thesis development course. It is the second of the three-course sequence intended to satisfy the requirements for the honors program as well as the Intelligence Analysis program. Most of the course will be jointly administered/taught with IA 440: Senior Seminar in Intelligence Analysis. In addition, students may be required to meet with the instructor to discuss progress on his or her project. Prerequisite: Senior standing; must be in the honors program.

IA 499C. Honors Thesis III. 3 credits. Spring only.
This is an honors thesis completion course. It is the third of the three-course sequence intended to satisfy the requirements for the honors program as well as the Intelligence Analysis program. Most of the course will be jointly administered/taught with IA 450: Capstone Project in Intelligence Analysis. In addition, students may be required to meet with the instructor to discuss progress on his or her project. Prerequisite: Senior standing; must be in the honors program.

IDLS 350. Literacy and Society. 3 credits.
An exploration and analysis of societal literacy practices as viewed through cognitive, cultural, class, workplace and technological lenses. Prerequisite: WRTC 103 or equivalent.

IDLS 391. Study Abroad. 1-6 credits.
Credit for academically-grounded, interdisciplinary study abroad. Students seeking credit must secure the approval of the department head and a faculty supervisor who will provide the academic structure, assignments and student evaluation.

IDLS 395. Topics in Interdisciplinary Liberal Studies. 1-6 credits.
Examination of selected interdisciplinary topics of importance to teacher education content areas. May be taken for a maximum of six credit hours toward the major.

IDLS 400. Seminar in Liberal Studies. 3 credits.
Capstone seminar for IDLS students in humanities/social sciences content area. Students will apply different disciplinary perspectives to a single topic. Course requirements will emphasize superior written and oral communication skills and the integration and application of content area knowledge to the teaching environment. Prerequisites: Students must have completed their IDLS core requirements and be within one course of completing the track. Education students should be in their third semester of their teacher education program.

IDLS 486. Internship and Field Experience. 1-6 credits.
IDLS credit for academically-grounded internships and field experiences. Students seeking credit must secure the approval of the department head for the use of academic structures, assignments and evaluation plans provided by qualified internship or field experience supervisors.

IDLS 490. Independent Study in Interdisciplinary Liberal Studies. 3 credits.
Individualized projects in interdisciplinary liberal studies. Prerequisite: Permission of the director.

IDLS 499A, B and C. Honors. 1-6 credits.

Interdisciplinary Social Science

ISS 200. Introduction to the Social Sciences. 3 credits.
The course serves as an introduction to the social sciences. It includes a review of the general content of selected social sciences with emphasis on primary foci, methods employed and perspectives guiding each disciplinary approach. The course will vary each semester according to the interests and specialization of the instructor(s).

ISS 300. Experiential/Service Applications. 3 credits.
Provides students with practical work experience through an internship, service learning program, etc. This experience culminates in the application of knowledge and skills emerging from previous courses. Prerequisite: Junior standing.

ISS 330. Maps, Money and World Trade. 3 credits.
This is an interdisciplinary class designed to help students, especially future teachers, integrate perspectives from various disciplines, especially history, geography, and economics, into a coherent account of an increasingly globalized world. We will pay particular attention to map construction and use (both historical and contemporary) and the relationship between economic ideas and world events, focusing on a variety of case studies over the last millennium.

ISS 400. Senior Seminar in Social Science. 3 credits.
The course builds upon all previous course listings and serves as the final integrating experience providing closure to the interdisciplinary social sciences. Students are expected to integrate theories, research and/or methods from several social science disciplines to present a senior level research paper. The course will vary each semester according to the interests and specialization of the instructor.

International Affairs

INTA 295. Cross-National Research Skills. 4 credits.
Students learn how to conduct research from theory formulation through data collection and hypothesis testing in the field of international affairs. Special emphasis on research and computer literacy. Prerequisite: MATH 220.

INTA 301W. The Washington Semester Experience: Global Affairs. 3 credits.
Part of the "Global Affairs" Washington Semester program, the course entails intensive study of a global theme. The theme's dynamics will be explored in varied settings: localities, nation-states, global geographic regions and international organizations (both governmental and non-governmental). The course provides outlets for engagement with policy actors and institutions based in Washington, D.C., as well as for individual and group experiential learning activities. Prerequisite: Enrollment in the Washington Semester program.

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