



iSchool Best Practices – information and proposal form

Please fill in the information below and upload the proposal form (in PDF format) at the [secure submission website](#) for consideration for presentation at the *iSchool Best Practices Track* at the 2018 iConference in Sheffield, UK. Please keep to the advised length or the proposal will not be considered for review.

Please consider also the key review criteria for selection:

- Observable results
- Grade of innovation
- Pedagogical dimension
- Degree of knowledge transfer

Questions about the *iSchool Best Practices track* should be directed to the chairs of the track:

iSchool Best Practices Chairs

- [Ann-Sofie Axelsson](#), University of Borås, Sweden
- [António Lucas Soares](#), University of Porto, Portugal

For general questions about the iConference, please contact iConference Coordinator [Clark Heideger](#).

Name(s) of Author(s): James Andrews and Randy Borum
Title of submission: Information Science as a Foundation for a STEM-based Intelligence Studies Curriculum
Area (please check the applicable area description with an x): <input checked="" type="checkbox"/> Curriculum <input type="checkbox"/> Teaching <input type="checkbox"/> Student experience <input type="checkbox"/> Research <input type="checkbox"/> Administrative management

Other (please enter the applicable keyword):

Submission abstract (max 150 words):

We discuss a new graduate program in Intelligence Studies at the University of South Florida, School of Information. The program is unique in comparison to other intelligence studies programs in its structure, which is based on information science with a focus on strategy and analytics, and curriculum design. We describe the driving philosophy and core constructs manifest in the program, how it is designed to meet various demands by organizations in the knowledge economy, and strategies we have employed that have led to its success.

Submission description (max 2,350 words):

The University of South Florida (USF), School of Information (SI) has created an innovative, STEM-based, Master of Science degree in Intelligence Studies. From its inception, the goal was to build a curriculum based on an information science foundation, as well as transform traditional approaches to intelligence studies to educate “next generation” intelligence analysts and related information professionals who can operate in today’s rapidly changing knowledge economy.

Information science and intelligence work have long had a symbiotic relationship that accelerated during the WWII era and throughout the cold war. During this time of rapid advances in technologies and networking, and concomitant massive growth in the amount and diversity of information and data, new tools were developed both in academic, scientific, and social spheres, as well as in support of intelligence tradecraft in more covert contexts. The overlaps in methods, tools, and processes used in both areas are not surprising, yet there are relatively few formal programs that articulate these explicitly for the purpose of addressing new demands in both fields.

This need for new information professionals can be seen in the rapid evolution and success of the iSchools movement, overall, and how many of these schools have looked to new programs. These tend to build upon traditional information professions but are more respondent to current market demands across information agencies and contexts. USF’s MS degree in Intelligence Studies falls into this group of new programs, building on an information science foundation but adaptive to changing needs and the skills of a new information professional. This is unique in that no other iSchool offers such a degree, and no other intelligence studies program has taken the approach we have, particularly given our specialized concentrations.

USF’s Unique Approach to Intelligence Studies Graduate Education

In contrast to the curricula in many traditional intelligence studies programs, which tend to focus on international relations, our program is intentionally focused on analytic methods and processes underlying information work and intelligence tradecraft. It is built around an innovative STEM-based model for professional analytic education that is grounded in the broader discipline of information studies/science. In the current security/information environment, adaptive thinking provides a distinct competitive advantage. The curriculum focuses primarily on developing analytic competencies, and only then subsequently allows students to focus on specialized subject-matter areas (an

inversion of past models in this area). The principal aim for us is to train problem-solvers who understand strategic concepts and analytic methodologies and can apply that knowledge to advance an organization's interests and objectives. Graduates will be capable of developing and evaluating new knowledge; generating and analyzing courses of action; expressing clearly reasoned opinions; and communicating effectively in writing, oral presentation, and visual display.

The fact that there is more and increasingly varied data and sources, and more efficient ways to process these, does not necessarily lead to better outcomes. In a knowledge-driven economy, enterprises need systematic guidance on *how* to manage the information they collect, *how* to make sense of what they have, and *how* to use knowledge to inform key decisions. Competitive advantage comes from insights, not just data. In this broad sense, then, the impetus for our program is not unlike other innovative information professional graduate programs coming out of other schools. However, we believe our curriculum and the underlying outcomes are unique.

Focus on Strategy and Informatics

The Intelligence Studies curriculum blends *Strategy* (a calculation of ends, ways, and means within acceptable bounds of risk to create favorable outcomes) and *Informatics* (the science of human and automated processing of information), to bridge the gap between intelligence/business analysts and data analysts. Ours is an interdisciplinary program that builds a set of analytic skills that allows graduates to work effectively with policymakers, military leaders, business executives, and data scientists to support better organizational decision-making.

Core Competencies and Objectives

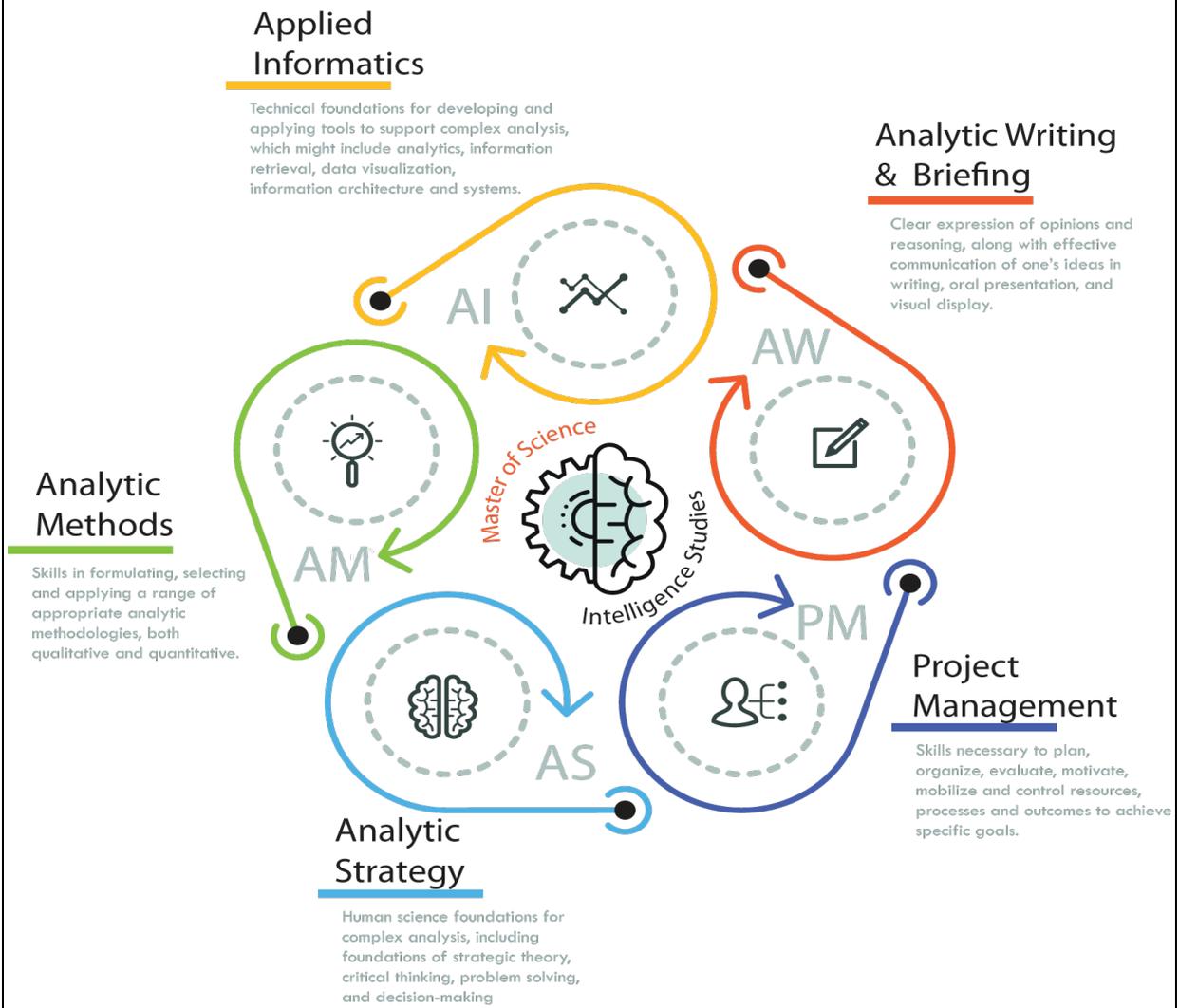
Core information science principles and perspectives form the foundation for the program. The curriculum educates students about information needs, seeking, access, retrieval, evaluation and organization; and prepares them to apply that knowledge in solving important problems. Graduates are prepared to find, analyze, and apply information to improve decision-making for individuals and organizations.

Accordingly, the overarching learning objectives at the program-level are to:

- Use and create technologies to retrieve, aggregate, and organize information to develop and evaluate new knowledge
- Analyze and apply that knowledge to an organization's mission and strategic objectives by generating and analyzing courses of action
- Express clearly reasoned opinions and communicate effectively in writing, oral presentation, and visual display.

The program curriculum is built around five core competencies, shown in Figure 1:

Figure 1: MS in Intelligence Studies Core Competencies



Analytic Strategy: This competency is grounded in human science foundations for complex analysis, including foundations of strategic theory, critical thinking, problem solving, and decision-making.

- Define and deconstruct a problem or policy question
- Apply strategic theory and analyze strategic objectives
- Engage in rigorous, creative problem-solving and systematic decision-making;
- Generate, analyze and present information concerning possible answers or courses of action
- Link options and alternatives to an organization's mission and goals
- Consider hypotheses and analytic results from different cultural perspectives

Analytic Methods: This competency emphasizes skills in formulating, selecting and applying a range of appropriate analytic methodologies, both qualitative and quantitative.

- Design and conduct applied research and analysis to support policy, planning or strategic objectives.
- Identify and evaluate relevant data to address the question
- Select and apply appropriate methods for knowledge development to achieve specific strategic and informational objectives

Applied Informatics: This competency is grounded in the technical foundations for developing and applying tools to support complex analysis, which might include computational modeling, data structures, data visualization, information architecture and systems.

- Design, implement, and evaluate technology to enable key information processes
- Apply core theories and best practices of information storage and retrieval
- Identify, develop, and evaluate appropriate information and communication technologies
- Access, retrieve, organize, store, integrate, and disseminate information from heterogeneous, geographically diverse sources to meet user needs and strategic objectives

Project Management: This competency comprises the skills necessary to plan, organize, evaluate, motivate, mobilize and control resources, processes and outcomes to achieve specific goals.

- Define and scope a new project or new phase of an existing project
- Develop and maintain a workable scheme to accomplish project objectives
- Encourage and enable people to work together as a team to accomplish a project
- Monitor and control project progress and performance, adapting the plan as necessary
- Identify, analyze and respond appropriately to risks over the course of the project

Analytic Communication: This competency area emphasizes clear expression of opinions and reasoning, along with effective communication of one's ideas in writing, oral presentation, and visual display.

- Communicate well-reasoned opinions clearly and concisely in written memoranda and oral presentations
- Formulate and communicate well-supported conclusions, being astutely aware of the assumptions and limitations underlying their approaches and opinions
- Leverage their knowledge of human cognition and perception to visually present data and other complex information to enhance end-user application

Curriculum Overview

The Master of Science in Intelligence Studies requires 36 Semester Credit Hours of graduate instruction, comprising a total of 10 graduate courses/seminars, an applied

internship, and a competency-based capstone project portfolio. To increase accessibility for students, the entire program is designed for asynchronous online delivery, with innovative interactive technology.

Eight required core courses (3 cr. each), correspond to the program's five core knowledge areas: analytic strategy, analytic methods, applied informatics, project management, and analytic communication. Students choose one of two concentrations:

- Strategic Intelligence: *The specific form of analysis which is required for the formulation of policy and plans at agency, corporate, national or international levels*
- Cyber Intelligence: *The acquisition and analysis of information to identify, track, and predict cyber capabilities, intentions, and activities that offer courses of action to enhance decision making*

There are eight required core courses, which correspond to the program's five core knowledge areas. Those core areas are: analytic strategy, analytic methods, applied informatics, project management, and analytic communication. The eight required courses are each three (3) credit hours.

- LIS 6700 Information, Strategy, and Decision Making
- LIS 6701 Advanced Professional and Technical Communication for Analysts
- LIS 6702 Advanced Intelligence Analytic Methods
- LIS 6703 Core Concepts in Intelligence
- LIS 5802 Information Analytics
- LIS 5937 Advanced Information Retrieval (or Open Source Intelligence)
- LIS 6260 Foundations of Information Science & Technology
- LIS 5937 Project Management

The final two curriculum requirements for the M.S. in Intelligence Studies are each offered at three (3) credit hours.

- Experiential Learning (Internship or Equivalent)
- Capstone (Integrated Portfolio of Competencies)

The eight required courses, four concentration courses/electives, and two other course-equivalent projects total 12 courses/equivalent.

Conclusion

The presentation will focus on the process we underwent in creating this innovative program, and more details on the content of the curriculum. Development of the new program involved faculty as well as outside stakeholder input, curriculum and course development, and socializing the notion of this kind of degree to colleagues on campus. Further insights will be provided related to the specific curriculum and the unique advantages our students have for experiential learning with various partners.