PROFESSIONAL STUDIES INTEGRATED INFORMATION, SCIENCE, AND TECHNOLOGY (PSIS)

Explanation of Course Numbers

- Courses in the 1000s are primarily introductory undergraduate courses
- Those in the 2000s to 4000s are upper-level undergraduate courses that can also be taken for graduate credit with permission and additional work assigned
- Those in the 6000s and 8000s are for master's, doctoral, and professional-level students
- The 6000s are open to advanced undergraduate students with approval of the instructor and the dean or advising office

PSIS 2101W. Writing and Communication in IT. 4 Credits.
Introduces students in the IT field to academic writing with clear, direct expression and a focus on audience and purpose. Includes a significant engagement in writing as a form of critical inquiry and scholarly expression to satisfy the WID requirement.

PSIS 2102W. Technical Writing. 4 Credits.
Students further develop the fundamentals of reading and writing with a focus on workplace communication and learn skills to help them contribute to the conversations on which all professional writing depends. Includes a significant engagement in writing as a form of critical inquiry and scholarly expression to satisfy the WID requirement.

PSIS 2103. Statistical Sciences and Data Analysis. 4 Credits.
Basic methods of descriptive statistics, probability theory, and confidence intervals. Students apply the tools learned to problems and data sets in the physical, biological, and social sciences.

PSIS 2104. Data Analytics and Programming. 4 Credits.
Statistical concepts and the application of the statistical programming language R. Prerequisites: PSIS 2103.

PSIS 2105. Programming and Computing Foundations I. 4 Credits.
Introduction to computer programming using Python. Elementary data types, control flow, assignments, functions, loops, conditionals, and methods.

PSIS 2106. Programming and Computing Foundations II. 4 Credits.
Advances students' knowledge of computing using Python. Object-oriented design concepts, Python modules, text files, and databases.

PSIS 3101. Agile Methodologies. 4 Credits.
Software development management methodologies, such as SDLC and agile; comparison of these approaches with emphasis on the activities and artifacts used in the agile approach.

PSIS 3122. Emerging Technologies and Ethical Impacts. 4 Credits.
Explores emerging technologies through case studies, ethical frameworks, and moral assessments. Topics include professional responsibility, privacy, economic impacts, and social impacts related to technological advancements.

PSIS 4101. Cloud Technologies. 4 Credits.
Topics in the field of information technology related to cloud computing and cloud architecture, including hardware, software, operating systems, and architecture.

PSIS 4102. Cloud Architecture. 4 Credits.
Cloud infrastructure and virtualization technologies, with a focus on automation and full stack solution development. Technologies covered include storage, computing, network, security, provisioning, installation, and configuration.

PSIS 4141. Computer and Telecommunication Networks. 4 Credits.
Protocols, standards, LAN, WANs, mobile networks, network terminology, internet components, and network devices and hardware.

PSIS 4142. Relational Databases and Their Design. 4 Credits.
Introduction to terminology and principles of relational database design. Students design, create, and work with a relational database, and perform hands-on work with a database using SQL.

PSIS 4144. Information and Network Security. 4 Credits.
The technical, operational, and organizational issues of securing information systems. Topics include common criteria, operating system issues, malware, and security awareness at all levels of the enterprise.

PSIS 4145. Software Systems Development Processes. 4 Credits.
Techniques, methodologies, and tools used in phases of a software development life cycle. Software design, OO analysis, prototyping, and organizational and behavioral aspects of software development projects.

PSIS 4160. Introduction to Data Science. 4 Credits.
Techniques used to understand, process, represent, and interpret large sets of data; fundamental concepts and abstractions used in data analysis; practical techniques employed by data scientists on a daily basis. Restricted to program majors. Prerequisites: PSIS 2103 and PSIS 2105.

PSIS 4161. Data Visualization. 4 Credits.
Data visualization fundamentals; theoretical and practical concepts related to creating visually appealing graphics using data; current and emerging software and web development tools. Restricted to students in the BPS in IIST program.

PSIS 4162. Data Mining and Web Analytics. 4 Credits.
Data mining techniques for structured and unstructured data; pattern discovery, text mining and natural language processing, cluster and sentiment analysis, and web scarping and analytics. Restricted to Major only. Prerequisites: PSIS 2105 and PSIS 2106.

PSIS 4163. Big Data Fundamentals. 4 Credits.
Build on the foundations of relational databases to expand into big data concepts, including business intelligence, data warehousing, data analytics, and cloud computing. NoSQL architectures, Hadoop, MapReduce, HIVE infrastructure, and Pig language. Recommended background: Prior completion of PSIS 4142.

PSIS 4190. Capstone Project and Senior Thesis. 4 Credits.
Students conduct independent research or complete a project using the knowledge and skills acquired throughout the program. Includes project management reporting at regular intervals and a final report and presentation.

PSIS 4191. Capstone Project and Senior Thesis I. 2 Credits.
Students conduct independent research or complete a project, using the knowledge and skills acquired throughout the program. Includes project management reporting at regular intervals and a final report and presentation.

PSIS 4192. Capstone Project and Senior Thesis II. 2 Credits.
Students conduct independent research or complete a project using the knowledge and skills acquired throughout the program. Includes project management reporting at regular intervals and a final report and presentation.

PSIS 4195. Undergraduate Research. 1-4 Credits.
Students conduct independent research or complete a project. Includes project management planning, reporting, time management, and completion of tasks throughout the semester.

PSIS 4199. Special Topics in IT. 2-4 Credits.
Topics vary by semester. May repeated provided the topic differs. Consult the Schedule of classes for additional information.