Washington University in St.Louis

Master of Information Systems Management

Email: sever@wustl.edu

Website: https://sever.wustl.edu/degree-programs/information-systems/index.html

Courses

Visit online course listings to view semester offerings for T81 INFO (https://courses.wustl.edu/CourseInfo.aspx?sch=T&dept=T81&crslvl=5:8).

T81 INFO 506 Fundamentals of Information Technology

This course is designed to provide a comprehensive survey of the information technology field. The enterprise relies heavily on information technology to generate value, efficiency, and effectiveness. As such, organizational leaders must ensure that the enterprise transforms to keep pace in the competitive environment. Globalization, mergers and acquisitions, and the proliferation of new business and operating models require management to continuously reconsider technology infrastructures, organizational structures, process re-engineering, outsourcing, innovation, technology effectiveness, and the creation and management of data and knowledge. Given these challenges and opportunities, the IT professional has never been more crucial to organizational success. In this context, students will become familiar with core IT concepts, processes, and technology and gain an increased understanding of the crucial role of IT in the modern enterprise.
Credit 3 units.

T81 INFO 517 Operational Excellence & Service Delivery

This course examines needed management skills and processes for the efficient and effective functioning of IT infrastructure and operational environments to deliver the right set of services at the right quality and at the right costs for internal and external users and customers. Specific emphasis is placed on understanding the roles of IT operations, including system administration, network administration, help desk services, asset management, DevOps, and reporting. Students will study the application of industry best practice frameworks for the management of IT infrastructure, operations, and development. Frameworks covered include the Information Technology Infrastructure Library (ITIL) and Control Objectives for Information and Related Technology (COBIT). Through the application of continuous service improvement, students will understand the IT service life cycle and be able to assess the effectiveness of processes and services.
Credit 3 units.

T81 INFO 540 IT Architecture & Infrastructure

This course will demonstrate the importance of understanding organizational strategies and goals and then designing and deploying an information technology (IT) infrastructure that supports those strategies and goals. The course will showcase how fundamental IT building blocks are integrated in meaningful ways in order to support IT services that drive core business outcomes. Through a hands-on enterprise architecture design project, students will learn to design IT infrastructure in a rational, innovative, and cost-effective manner. We will cover a range of enterprise architecture design considerations that are commonly faced by organizations as they enhance their services, launch new products, or expand to new markets.
Credit 3 units.

T81 INFO 552 Special Topics in Information Technology

The material for this course varies among offerings, but this course generally covers advanced or specialized topics in emerging topics in information technology, data science, and cybersecurity.
Credit 3 units.

T81 INFO 558 Applications of Deep Neural Networks

Deep learning is a group of exciting new technologies for neural networks. It is now possible to create neural networks of much greater complexity through a combination of advanced training techniques and neural network architectural components. Deep learning allows a neural network to learn hierarchies of information in a way that is like the function of the human brain. This course will introduce the student to computer vision with Convolution Neural Networks (CNN), time series analysis with Long Short-Term Memory (LSTM), transformers, large language models (LLMs), and classic neural network structures. The focus is primarily on applying deep learning to problems, with some introduction to mathematical foundations. High-Performance Computing (HPC) aspects demonstrate how you can leverage deep learning on graphical processing units (GPUs). Students will use Python to implement deep learning using PyTorch and other libraries. It is unnecessary to know Python before this course; however, familiarity with at least one programming language is assumed. We deliver this course in a hybrid format, including classroom and online instruction.
Credit 3 units.

T81 INFO 563 IT Governance & Risk Management

Firms with superior IT governance designed to support the organization's strategy achieve better performance and higher profits than firms with poor (or no) governance. Just as corporate governance aims to ensure quality decisions about all corporate assets, IT governance links IT decisions with company objectives and monitors performance and accountability. We will start with developing an understanding of IT governance and go over the decision-rights and decision-making processes associated with it. We will study various enterprise operating models and strategies and see how they in turn determine the IT strategy and operating model. We will also review practices to provide business oversight and transparency into IT investments and go over how IT leaders can proactively partner with other business leaders to drive top-line growth and/or operational cost savings. We will also review how to classify initiatives into projects and programs and group them into portfolios. Furthermore, we will discuss different project implementation approaches, ranging from waterfall to agile methodologies. We will also cover how many IT departments are transitioning towards a more productized delivery model. Finally, we will also review technology selection processes, architectural governance, procurement of products and services, as well as service and vendor management. Throughout this process, we will be reviewing decision-making from the perspective of both leveraging business opportunities and managing risk. Risk management is an essential component of an IT leader's role. We will cover the risk management process and use it to identify and manage & control some of the common risks that contemporary IT organizations face. This includes guarding against cyber threats, protecting data, and managing vendor, business continuity, regulatory, project, and operational risks etc.
Credit 3 units.

T81 INFO 574 Foundations of Analytics
The steeply decreasing costs of gathering, storing, and processing data have created a strong motivation for organizations to move toward "data-driven" approaches to problem solving. As such, data analytics continues to grow rapidly in importance across industry, government, and nonprofit organizations. This course seeks to equip students with a wide range of data analytics techniques that serve as the foundation for a broad range of applications, including descriptive, inferential, predictive, and prescriptive analytics. Students will learn the process of building a data model as well as a variety of analytics techniques and under what situations they are best employed. Through lectures and practical exercises, students will become familiar with the computational mathematics that underpin analytics; the elements of statistical modeling and machine learning; model interpretation and assessment; and structured and unstructured data analysis. Students will also undertake a project to build an analytical model using a "real-world" data set.
Credit 3 units.

T81 INFO 575 Enterprise Data Management
In the 4th Industrial Revolution of Digital Transformation, Data is a key and necessary foundational element. Enterprise Data Management is the responsibility and opportunity to effectively utilize data and make it useful to achieve organizational goals. Organizations have begun generating, collecting, and accumulating more data at a faster pace than ever before. The advent of "Big Data" has proven to be both an opportunity and challenge for organizations who are awash, even drowning-in data, but starved for knowledge. Unfortunately, many organizations have not developed comprehensive enterprise data management (EDM) practices that treat data as a true organizational asset. EDM is a comprehensive approach to defining, governing, securing, and maintaining the access and quality of the right data involved in the business processes of an organization. This course will cover many aspects of building an enterprise data management program, including areas such as data governance, data security, data architecture, data quality, data ownership, metadata management, data strategy, and others.
Credit 3 units.

T81 INFO 576 Analytics Applications
This course builds on the content taught in Enterprise Data Management and Foundations of Data Analytics. It focuses on the strategic, operational, tactical, and practical use of data analytics to inform decisions within an organization across a range of industry and government sectors as well as within organizational functions. Students will be introduced to specific analytics techniques that are used currently by practitioners in areas of diagnostic, descriptive, predictive, and prescriptive analytics. Students will learn the critical phases of analytics including data preparation, model development, evaluation, validation, selection, and deployment. In so doing, students will learn to apply data analytics in order to optimize organizational processes, improve performance, and inform decision-making. Recommended completion of T81 574.
Credit 3 units.

T81 INFO 585 Capstone
This capstone course is the culmination of the Masters of Information Systems Management program. The capstone project provides the opportunity for students to employ the knowledge and skills they have gained from their course work in a rigorous and systematic manner. Projects are sponsored by external corporate, government, and non-profit organizations, and they provide the opportunity for students to deliver meaningful research and recommendations for "real-world" IT challenges and problems.
Credit 3 units.