

Master of Science Program in Strategy and Intelligence

Foundation Course

SI401 Elementary Mathematics and Statistics

Elementary mathematics; fundamental mathematical structures; set theory; basic logic and proof techniques; basics of counting including counting arguments, permutations and combinations, and recurrence relations; recursive functions, introduction to probability theory and graphs. Elementary statistics including descriptive and inferential statistics; variables and types of data; data collection, presentation and analysis; simulation and sampling techniques; normal, skew and chi-square distributions; probability and counting rules; frequency distributions and graphs; tests of statistical hypotheses; correlation and regression; analysis of variance; non-parametric statistics.

Core Courses

SI501 Roles of Strategy in Military and Civilian Organizations

Fundamentals of military strategy as a tool of national policy; relationship between warfare and foreign policy; the development of modern strategic thought from Machiavelli to the present; strategic concepts for land, sea and air power; developments in conventional warfare and military activity since 1945; the geo-political environment as a context for military activity; principles of strategy: objective, offensive, mass, economy of force, maneuver, unity of command, security, surprise, simplicity; decision making at government and military levels; planning and conduct of military campaigns; the relationship between strategy and tactics; the role and importance of logistics and technology.

SI502 Strategic Management and Planning Practices

Mission, vision and objectives of strategic management; qualities of a successful strategic plan; modern analytical methodologies: situation, target; path; successful strategic practices using logical steps: analysis, development, planning, implementation, evaluation, correction and adjustment; significant emerging trends in strategic management; formulation and implementation of strategic plans at government and defense/military levels, business, and functional strategies; practical tools to develop specific action plans against the uncertainties of the future; strategy as revolution (defeating mind sets) including case studies.

SI503 Operations Research Principles and Tools

Objectives of operations research; historical background; operations analysis process, data collection, validation of models, sensitivity analysis and the applicability of models; military and defense operations analysis such as search, detection and damage assessment, simulation and wargames, cost effectiveness and cost benefit analysis, linear and integer programming, heuristic optimization, combat models and threat assessment; validation of results from operations research tasks and the implementation difficulties.

SI504 Information and Intelligence Operations

The importance and role of information and intelligence to the military commander; evolution of information operations (IO), present-day command and control warfare and information warfare, modern applications of IO as a strategic tool for conflict in the information age; components of the information environment; present day formulation of IO as the synchronization of a broad range of military and non-military activities intended to achieve information and decision superiority; role of intelligence in military operations and decision-making; types of intelligence: human, imagery, signals, measurement, technical and counter-intelligence; intelligence operations successes and failures; challenges of the 21st century information and intelligence environment; conversion of information into intelligence; role of databases and virtual knowledge bases; influence of real-time open-source information on the conduct of military operations.

SI505 Decision Analysis and Decision Making

The relevance and roles of decision making in military strategy; decision-making psychology; rational and irrational thinking processes; lateral and critical thinking techniques; methods of structuring and analyzing decision-making problems; decision-making tools; payoff matrices, multifactor evaluation techniques, decision trees, analytic hierarchy process (AHP) for complex decision making, influence diagrams, mind maps; group-think and group decision making techniques.

SI506 Research Methodology

Basic frameworks in research; modern techniques used in data analysis; formulation of a hypothesis of interest, hypothesis testing; results interpretation; research techniques for gathering information; research proposal development and research evaluation.

Elective/Specialization Courses

SI601 Intelligence in Peace and War

Introduction to intelligence in peace and war; the importance and value of “knowing”; evolution of modern intelligence systems; nature of intelligence in peace and war; role of intelligence as a source of national power; outline model of an intelligence system; operation of intelligence through operational, institutional and policy contexts; effects and performance of intelligence; problems of intelligence: achieving accuracy and ways to improve performance; value and problems of intelligence cooperation at the national and international levels.

SI602 Developments in Modern Warfighting

Historical background, concepts and definitions of the revolution in military affairs (RMA); objectives of RMA; new war-fighting paradigms and force structure assignment for the future; applications of advanced weapons technology, information technology, military organization and doctrine; effects-based operations (EBO); network centric warfare (NCW); the RMA debate: evolution versus revolution.

SI603 The Challenge of Modern Terrorism

Defining terror, terrorism, and terrorists; the objectives and psychology of terrorism; nature and origins of terrorism – democratic ideals versus violent dissent; types of terrorist organizations and their methods in Asia; threats posed to the nation state by modern terrorism through its operations and effects; counter-terrorism policy and operations, effectiveness of short and long-term strategies being used against modern terrorism.

SI604 Case Studies in Intelligence

Case studies as an effective tool to learn lessons from the past; objectives, advantages and disadvantages of the case study method; value of empirical observation; specific case studies of successful and unsuccessful intelligence operations: the role and efficacy of intelligence in the modern nation state; relationship between intelligence and decision-making with an emphasis on the military context; the promise and peril of intelligence support.

SI605 Future-Based Approaches to Decision Making

Foundations of strategic management; developing strategies for effective planning and decision-making; organizational capacity and capability; rational versus political decision-making models; strengths, weaknesses, opportunities and threat (SWOT) process; qualitative analysis tools to examine decision making from two perspectives – impact of decision making on the future and impact of the future on decision making; application of these tools to create and complement a robust strategic management framework underpinned by pervasive organizational learning.

SI611 Risk Management

Principles of risk management; introduction to risk management processes: establishing the context, identification of potential risks, assessment, potential risk treatments, planning risk management, implementation, review and evaluation; concept of "risk remedy" finding ways to achieve the ideal system for the least overall cost; comprehensive risk management from identifying the need for action, through decision-making, to scheduling

actions; risk analysis, simulation, predictive analysis models, verification and validation of risk analysis models, risk management tools.

SI612 Knowledge Management

Modeling organizational knowledge; knowledge-centered approaches – organizational knowledge tools, automated knowledge, automated knowledge extraction such as data mining, group knowledge tools; human-centered approaches – knowledge ownership and politics in organizations; organizational approaches to knowledge sharing – sharing incentives, organizational cultures; advanced data mining, methods of data cleaning and partitioning, data projection techniques, data visualization, data selection and extraction, selection of mining algorithms, ethics and legal issues, agents for knowledge discovery, decision support systems for knowledge discovery and case studies.

SI613 Human Resource Management

Principles of human resource management (HRM); objectives of HRM; fostering sound human resource policy and practices; workforce planning, recruitment, induction, orientation, skills management, training and development, administration, compensation, time management, travel, benefits, personnel cost planning, and performance appraisal; managerial decision-making including selection, evaluation, staff development and termination of personnel.

SI614 Project Management

Project management definitions, principles and objectives; distinctive nature of project management in government organizations, in particular within defense/military environments; project management approaches; project development stages; components of project management; tools, knowledge and techniques for managing projects, the project management triangle: cost, scope and schedule; work breakdown structures, project management framework; qualifications, roles, competencies and responsibilities of project managers; international standards; a guide to the project management body of knowledge (PMBOK).

SI615 Change Management

Problems and key issues relating to managing change in organizations; human factors and the psychology of change; metaphors for understanding change; theories of planned change; the role of the change agent; diagnosis and responses to change; the process of planned change, interventions, managing and leading change; current issues and challenges; catering for fast-changing environments.

SI616 Logistics Management

Basic concepts and techniques of logistics management within the framework of an integrated logistics system (ILS); elements of ILS: maintenance planning, supply support, support and test equipment, manpower and personnel, training and training devices, technical data, computer resources, packaging-handling-storage-transportation, facilities, and design interface; management tools applied to typical logistics problems; supply chain management; operations management; location planning; various military and civilian applications.

SI617 Strategic Leadership

Leadership theory; concepts of leadership as a holistic process that involves influencing people both inside and outside the organization; dynamics of interpersonal influence processes; keys to effective leadership; leadership models; structural, human resource, political and symbolic frameworks; leadership styles; role of morality, religion, ethics, philosophy, and rational reasoning; managerial grid: balancing people and tasks; the process of great leadership: challenging the process, inspiring a shared vision, enabling others to act, encouraging the heart; case studies of great and failed leaders.

SI621 Theory of Development

Objectives for social and community development; the community as a system; social and community development problems; maintaining stability while introducing change; changing development theory; conceptual frameworks for community development; defining sector interdependencies; the democratic structuring model; the impact of culture; worldview developments and their influence in shaping a conceptual framework for a relevant development path of a nation; modernization development era, dependency development underpinned by dependency theory, the concept of post-modernism.

SI622 Peace Operations

Doctrinal framework for peace keeping and peace monitoring operations; authoritative statement and guide for conducting peace keeping operations; strategic context of peace operations, unilateral and multinational operations; information on the variables of peace keeping operations and peace monitoring operations, principle of peace keeping operations, tenets of armed forces peace keeping operations; different types of peace keeping operations; operational context for various peace keeping processes.

SI623 Philosophy of Sufficiency Economy

The philosophy of the sufficiency economy and the royal development study centers initiated by HM the King of Thailand; concepts and application of sufficiency economy underlying the royal initiated project; the influence of globalization and the need to establish a self-sustaining economy; the concept of “self-immunity”; new agricultural theory, applied theory of self-reliance from individual/family up to the national level; Thai local wisdom and its application to development, community-based business concepts for security; field training both in rural and urban communities; models of success.

SI624 Social Movement and Conflict Management

Understanding conflict and conflict dynamics; causes and effects of conflict; ideas and important concepts relating to conflict management, including the role of power, violence and non-violent peace processes; applications of conflict management frameworks relevant to a situation of an arising conflict; communication in interpersonal conflicts; strategies for conflict analysis, transformation, management and resolution; operations and tactics arising from these concepts; concrete ideas of non-violent conflict management.

SI625 Regional Development in the Global Environment

Relationship between local and global development processes; the challenges facing regional spaces in the global context; the impact of a changing global environment; regions as sustainable economic systems; the need to share information and expertise across the rural-urban divide; development issues in the global environment; applied research and research training that facilitate a constructive, creative, interchange between academic and non academic sources on regional development; community and practitioner involvement in the research process, through research training, research facilitation, and participatory research partnerships within Thailand and abroad.

SI631 System Engineering

Defining systems, systems engineering and systems engineering management (SEM); an introduction to the processes and management practices associated with the systems engineering discipline; the role of SEM in the development and life-cycle management of a system; application of systems engineering processes in defense materiel acquisition and life-cycle management projects from “cradle” to “grave”; concept and technology development, system development and demonstration, production and deployment, system configuration management and disposal; tools commonly used in systems engineering; introducing the concept of evolutionary acquisition; the importance of sound requirements analysis and test and evaluation of systems; the relationship between systems engineering and other disciplines.

SI632 Command, Control, Communication, Computer, Intelligence,

Surveillance and Reconnaissance (C4ISR)

Introduction to command, control, communications, computer, intelligence, surveillance, and reconnaissance (C4ISR) architectural frameworks; functions and objectives of C4ISR systems; the operational, systems and technical architectures; various paradigms for C4ISR systems and their subsystems; process for defining a system architecture; various technologies and IT systems used to underpin C4ISR systems; some of the factors that influence the design, acquisition and management of such systems; national, theatre, joint task force and tactical dimensions of an integrated architecture; core architecture data management; the need for a common approach, operational scenarios for C4ISR.

SI633 Concept Development and Experimentation

Role of concept development and experimentation (CD&E) in defense and military environments; defining scientific method; types of experiment: real or virtual; benefits of CD&E to decision-making; applications to future force development; scenario analysis and futures techniques; criteria for successful experimentation; modeling and simulation; validation tools; phases of an experimentation campaign; use of concept demonstrators and

prototypes; co-evolution of joint force concept development paths and future capabilities; building a body of knowledge; standards for evaluating concepts.

SI634 Gaming and Wargaming

War gaming and its application to analysis of military and non-military issues; experiments, experimentation campaigns, matrix gaming and other forms of games to validate concepts and procedures before implementation; types of war games: grand strategy, strategic, operational, tactical and skirmish; politico-military and strategic-bureaucracy; applications for training, exercises, and military operations; benefits and limitations of war gaming; new challenges to war gaming: the impact of technology; development of synthetic environments; war gaming for joint operations.

SI635 Computer Security and Cryptography

Theory and practice used to maintain security on computers and their associated networks; database security, firewall design, network attacks and defenses and risk analysis and security management; concept of cryptography; cipher design, stream ciphers, public key encryption and certification, block ciphers: data encryption standard (DES) and advanced encryption standard (AES); encryption modes of operation: cipher block chaining (CBC) and electronic code book (ECB); hash function design; digital signatures; identity based encryption (IBE); evaluation of security systems.

SI636 Modeling and Simulation

Principles of modeling techniques for solving different real-world decision-making problems; overview of mathematical modeling, the process of quantitative problem solving, spreadsheet based decision modeling; concepts and principles of simulation including continuous and discrete simulation, time stepped and event stepped simulation, simulation of queuing and inventory systems.

SI637 Systems Dynamics Modeling

Concepts of systems and system dynamics; analysis and modeling of complex systems, using tools such as influence diagrams and simulation software approaches; system behavior and causal loop diagrams; modeling approaches; simulating processes; basic feedback structures; model development; refining the model; representing decision process; accounting for non-linearities; identifying initial conditions; management applications from problem identification to implementation of solutions.

SI638 Statistics

Introduction to statistics in support of decision making; data collection and presentation, frequency distributions and graphs; probability and counting rules; discrete probability distributions; the normal distribution; sampling; confidence intervals and sample size; forecasting, statistical quality control, risk analysis, hypothesis testing, decision analysis, correlation and regression; analysis of variance; non-parametric statistics; sampling and simulation; simple spreadsheet modeling.

Independent Study and Thesis

SI701 Independent Study 3 Credits

This course is a self-study course under the supervision of an advisor on a topic agreed to by the M.Sc. (S&I) committee.

SI710 Thesis 12 Credits

Individual study in any topic relevant to strategy and intelligence. The topic must be approved by the thesis committee and the student must follow the steps as advice by his or her advisor. Student must make progress report and present his or her work to the thesis committee and in a seminar. Finally, the student must pass the oral defense of thesis.