



# Interdisciplinary Ph. D. Program in Information Security

## Area A. Required courses (8)

Four technical courses:

- CS 52600 Information Security **or** C&IT 55500 Advanced Network Security
- CS 55500 Cryptography
- CS 62600 Advanced Information Assurance
- CS 65500 Advanced Cryptology—or equivalents

Two philosophical/ethical courses:

- PHIL 52400 Contemporary Ethical Theory **and**
- **PHIL 58000** Proseminar in Philosophy—**or** equivalents; e.g. TECH 62100 Information Assurance Ethics

Two political/social courses:

- POL 62000 Proseminar in Public Policy **and**
- TECH 62100 Technology and Policy

## Area B. Recommended courses

Any eight courses not taken in Area A:

|      |               |   |      |               |   |
|------|---------------|---|------|---------------|---|
| AGEC | 59600         | Forensic Economics I  |      | 59000         | FTC Fault-tolerant Computer System Design       |
|      | 60800         | Benefit-Cost Analysis   |      | 62600         | Advanced Information Assurance                  |
|      | 68500         | Advanced Quantitative Methods For Decision Making Under Uncertainty   |      | 63600         | Internetworking                                 |
|      | <b>69100</b>  | Research in Agricultural Economics                                    |      | 65500         | Advanced Cryptology                             |
| ASM  | 59100A        | Foundations in Homeland Security                                      | CSR  | <b>69000†</b> | Seminar On Topics In Computer Sciences          |
|      | 59100B        | Managing Resources and Applications for Homeland Security             | ECE  | 63100         | Consumer Behavior Theory                        |
| AT   | 57300         | Foundations in Homeland Security                                      |      | 56500         | Computer Architecture                           |
|      | 58100         | Contemporary Issues in Transportation Security                        |      | 57200         | Fault-Tolerant Computer Systems                 |
| CNIT | 42100         | Small Scale Digital Device Forensics                                  |      | 57400         | Software Engineering Methodology                |
|      | 45500         | Network Security  |      | 63200         | Mach Learn & Data Mining                        |
|      | 45600         | Wireless Network Security & Management                                | ECET | 66900         | Natural Language Processing (LING 68900)        |
|      | 49900C        | Cyberforensics: Advanced Technical Issues                             | ECON | 52500         | Applications in Forensic Engineering Technology |
|      | 52800         | Information Security Risk Assessment                                  |      | 60600         | Microeconomic Theory I                          |
|      | 55600         | Basic Computer Forensics  | ENGL | 61000         | Game Theory                                     |
|      | 55700         | Advanced Cyberforensics   | IE   | 62800         | Natural Language Process                        |
|      | 55800         | Bioinformatics Computing And Systems Integration                      |      | 53000         | Quality Control                                 |
|      | 58100AIS      | Applied Intelligent Systems   |      | 53200         | Reliability                                     |
|      | 58100C        | Applied Cryptography  |      | 54800         | Knowledge-Based Systems                         |
|      | 58100         | Foundations in Homeland Security (ASM 59000)                          | IT   | 55900§        | Cognitive Engineering Of Interactive Software   |
|      | 58100         | Managing Resources and Applications for Homeland Security (ASM 59000) | LING | 57700§        | Human Factors in Engineering                    |
|      | 58100ASI      | Applied Intelligent Systems   |      | 65900         | Human Aspects of Computing                      |
|      | 58100S        | Information Security Management                                       |      | 67400         | Cpt Com Mth Prod Cntrl                          |
|      | 58100V        | Current Topics in Cyber Forensics                                     | MGMT | 54500         | Biometrics Technology And Applications          |
|      | 58100Z        | Programming for the Internet  |      | 50000         | Introduction to Linguistics                     |
|      | 62300R        | Risk and Technology   |      | 52100         | Syntax I: Syntactic Analysis                    |
|      | 62300NLS      | Nat Lang Info Assur & Sec Sem   |      | 53100         | Semantics I: Lexical and Sentential Semantics   |
| COM  | 51200         | Theories Of Interpersonal Communication                               |      | 68900         | Natural Language Process (ECE 66900)            |
|      | 51800         | Theories Of Persuasion  | OBHR | 54700§        | Computer Communication Systems                  |
|      | 52000         | Small Group Communication   |      | 59000         | Forensic Accounting                             |
|      | 55800         | Historical Trends In Mass Communication Research                      |      | 68400         | Information Security for Managers               |
|      | 55900         | Current Trends In Mass Communication Research                         | PHIL | 68100         | Behavior Organization                           |
|      | 57400         | Organizational Communication  |      | 68300         | Individual Behavior in Organizations            |
|      | 63200         | Special Topics In Mass Communication                                  |      | 52400†        | Contemporary Ethical Theory                     |
| CS   | 50300         | Operating Systems   |      | <b>58000†</b> | Proseminar in Philosophy                        |
|      | 53600§        | Data Communication and Computer Networks                              |      | 62400         | Seminar in Ethics                               |
|      | 56500         | Programming Languages   | POL  | 62000         | Proseminar Public Policy                        |
|      | 58000         | Algorithm Design, Analysis, and Implementation                        |      | 62100         | Proseminar In Science, Technology, And Politics |
|      | <b>59000†</b> | Topics In Computer Sciences   | PSY  | 55500§        | Cognitive Engineering Of Interactive Software   |
|      |               |   |      | 57700§        | Human Factors in Engineering                    |
|      |               |   |      | 58500         | Psychological Foundations of Consumer Behavior  |
|      |               |   | STAT | 62900         | Motivation                                      |
|      |               |   |      | 50200         | Experimental Statistics II                      |
|      |               |   |      | 51200         | Applied Regression Analysis                     |
|      |               |   |      | 51300         | Statistical Quality Control                     |
|      |               |   |      | 51400         | Design of Experiments                           |
|      |               |   |      | 51700         | Statistical Inference                           |

Color Key

If Course Title Relevant

Last Revised 11/6/13

**Area C. Elective Courses**

Any four courses:

|      |        |   |      |        |   |
|------|--------|---|------|--------|---|
| AT   | 57300  | Foundations in Homeland Security                        | FNR  | 55800  | Digital Remote Sensing and GIS  |
|      | 58100  | Contemporary Issues in Transportation Security          | IT   | 50700  | Measurement and Evaluation in Industry and Technology                         |
| COM  | 61000  | Seminar: Special Topics in Rhetorical Studies           | LING | 50000  | Introduction to Linguistics   |
|      | 61200  | Seminar: Special Topics In Interpersonal Communication  |      | 53100  | Semantics I: Lexical And Sentential Semantics                                 |
|      | 61800  | Seminar: Special Topics In Persuasion Theory            |      | 53200  | Semantics II: Formal And Grammatical Semantics                                |
|      | 67400  | Seminar: Special Topics In Organizational Communication | MGMT | 50500  | Management Accounting II  |
|      | 67600  | Seminar: Special Topics in Health Communication         |      | 50600  | Auditing  |
| CS   | 50200  | Compiling and Programming Systems                       |      | 54400  | Database Management Systems   |
|      | 54100  | Database Systems  |      | 54500  | Systems Development   |
|      | 54200  | Distributed Database Systems                            |      | 56100  | Logistics   |
|      | 57300  | Data Mining   |      | 59000† | Directed Readings In Management   |
| ECE  | 54400  | Digital Communications                                  |      | 59000  | Digital Game Design Techniques  |
|      | 56200  | Introduction to Data Management                         |      | 60000  | Financial Accounting  |
|      | 56500  | Computer Architecture                                   |      | 60100  | Managerial Accounting   |
|      | 56600  | CISC Microprocessor System Design                       |      | 63000  | Legal and Social Foundations of Management                                    |
|      | 57000  | Artificial Intelligence                                 |      | 68300  | Princ of Info Systems   |
|      | 57300  | Compilers And Translator Writing Systems                | OBHR | 64200  | Comp And Reward Syst I  |
|      | 63200  | Machine Learning & Data Mining                          |      | 64300  | Comp And Reward Sys II  |
| ECET | 58100† | Selected Topics in Sensors                              |      | 66300  | Sem In Orgnzn Theory  |
| ECON | 67600  | Economics of Uncertainty and Information I              |      | 66700  | Team Work   |
|      | 67700  | Economics of Uncertainty and Information II             | PSY  | 55600  | Job Design  |
| EDCI | 64400  | Legal Issues in Career and Technical Education          |      | 57900  | Human Factors Laboratory  |
|      |        |   | CNIT | 62300  | Research Methods for Computing<br>(replaces TECH 64600) (Beginning Fall 2013) |

Any course from Area B above, not taken to satisfy Area B requirement, can be taken in Area C.

Courses from at least five different graduate programs should be taken among Areas A, B, and C. Five graduate courses must constitute a declared and approved meaningful sub-concentration.

§ Note: May take one or the other of the following but not both:

- CS 53600 or MGMT 54700
- PSY 57700 or IE 57700
- PSY 55500 or IE 55900

† When content is appropriate

**Specific departmental requirements**

- Students graduating via the Department of Communication must satisfy that department's requirements for the Masters' degree in Information Security, take COM 60000 and COM 60100 and make sure that they earn a minimum of 12 graduate credits in Communication;
- Students graduating via Technology must satisfy that department's requirements for the Masters' degree in Information Security;
- Students graduating via Linguistics must take LING 53100 and LING 68900: Natural Language Processing.