

2003 June 20

MEMO TO: EABC  
FROM: Gordon Everest, IDSc Department  
SUBJECT: Mapping Courses to SDLC

ATTACHMENTS: - Memo to IDSc faculty instructors, 2003 May 5  
- Original table Mapping IDSc Courses to SDLC (excluding preliminary mapping) as prepared by EABC, 2002 August.  
- Description of courses in MIS undergrad concentration (4 pages)

Here is my first cut at assembling the information I received back from the IDSc instructors who were teaching the IDSc undergraduate courses this past school year (2002-2003). Rather than attempt to synthesize it, I thought it would be better to let you see the "raw" data they sent me.

The original spread sheet has been split into two parts: SDLC only and the Mapping to courses. The first part includes only information relating to the SDLC. I did, however, modify and expand the "Activities" listed in the second column to better relate to subtopics in some of the courses. The second part (shown first on the next page) takes the first two columns from the SDLC description and maps the phases and activities to the IDSc courses.

For those of you in EABC who are not completely familiar with the course numbers, I have also attached a copy of the current catalogue description of the Undergraduate MIS concentration with a brief description of each of the courses.

## Mapping IDSc Courses to the SDLC

Phase	Activities/SubTopics	IDSc Course	Tools/Techniques/ Languages
<b>Planning (WHY)</b>	<ul style="list-style-type: none"> <li>▪ Strategic Analysis/Objectives</li> <li>▪ Global Architectures</li> <li>▪ Scoping &amp; Setting Priorities</li> <li>▪ IS Development project selection, initiation, &amp; planning</li> <li>▪ BCP Requirements</li> <li>▪ Introduction to SDLC</li> </ul>	3001- Porter/Rockart..=2 3001- =10% 3202 --=4, Project Planning 4203--=10% infrastructure plan 4204 x% 4431/2--=3 (Data Planning)	3202-MS Project
<b>Analysis (WHAT)</b>	<ul style="list-style-type: none"> <li>▪ Gathering Requirements</li> <li>▪ Feasibility (tech, econ, operat'l)</li> <li>▪ Cost / Benefit</li> </ul>	3001--=10% (IT investments=1 ROI/earnings/mkt shr.=1 3202 --=5, IS Dev. Methods 4203--=10%, infrastr. patterns 4204 x% 4490-Networking= 4	
<b>Design (HOW)</b>	<ul style="list-style-type: none"> <li>▪ Process Modeling (DFD, logic modeling, str.English, dec.trees)</li> <li>▪ Data Modeling (ERD)</li> <li>▪ User Interface (GUI) - queries, reports, forms</li> <li>▪ Platform (H/W, OS, network)</li> </ul>	3001--=40% (DFD=1, ERD=1 normalization=2) 3201--=3 (relational data str.=1) 3202 --=5 (8 lectures) 4203--=3 (group project) 4431--=80% (Data Modeling) 4490--=3 nwk protocols,security	<ul style="list-style-type: none"> <li>• CASE Tools</li> <li>• Object Oriented</li> <li>• Sterling COOL</li> <li>• Rational Rose</li> <li>• MS VisioEA (ORM)</li> <li>• XML web service</li> <li>• ASP.net/ Access</li> </ul>
<b>Construction</b>	<ul style="list-style-type: none"> <li>▪ Definition, programming</li> <li>▪ Database Definition/Population</li> <li>▪ DBMS-queries/reports/forms</li> <li>▪ Testing (unit, system, accept)</li> <li>▪ Quality Assurance</li> </ul>	3001- create DB, use DBMS=5 3001--=20% (Access) 3201--=5 3202--=3 4203--=5 (final project) 4204 x% 4431/2--=4 (Database, DBMS) 4441--=2	<ul style="list-style-type: none"> <li>• Access/SQL</li> <li>• VBasic/VS.net=5</li> <li>• ASP.net=2</li> <li>• .net web services</li> <li>• MS SQL Server</li> <li>• HTML, ASP</li> </ul>
<b>Implementation</b>	<ul style="list-style-type: none"> <li>▪ Conversion Strategies</li> </ul>	3001--=10% 3201--=2 3202--=2 (1 lecture+team proj) 4203--=10% IT inity packaging 4204 x% 4490--=3 encryption, RSA	
<b>Operation</b>	<ul style="list-style-type: none"> <li>▪ Problem / Incident Tracking</li> <li>▪ Change Management</li> <li>▪ Monitoring (perf, capacity)</li> </ul>	4203--=20% mon. IS orgn str. 4490--=3 network monitoring	
<b>Post-Impl. Review</b>	<ul style="list-style-type: none"> <li>▪ Project Evaluation</li> <li>▪ Evaluate BCP/Contingency Plan</li> <li>▪ Audit</li> </ul>	3202--=3 (2 lects) 4203--=10% infrastr. Review 4204 x%	3202-MS Project
<b>Maintenance/ Enhancement</b>	<ul style="list-style-type: none"> <li>▪ ?</li> </ul>	3001--=5% 4204 x%	
<b>Management</b>	<ul style="list-style-type: none"> <li>▪ Project Management</li> </ul>	3202--=(substantial focus) 4204--=???	3202-MS Project
<b>Ancillary Activities</b>	<ul style="list-style-type: none"> <li>▪ Surveillance (industry, emerging technologies, tools)</li> <li>▪ Approaches (Buy vs. Build)</li> </ul>	3001- intro=2; =5% 4203--=20% infrastr.technology 4204 x% 4432--=3 DB standards (SQL)	

\*\* Course 3001 (Information Systems for Business Processes and Management) covers all aspects of the Systems Development Life Cycle at an overview level.

Memo sent out on 2003 May 5:

Dear IDSc ugrad course instructor

Our IDSc Executive Advisory Board on Curriculum (EABC) has asked me to solicit your input to completing the attached table. In it they are seeking to assess the extent to which the content of our undergrad courses - considering lectures, text/readings, assignments, and hands-on exercises - cover the various phases of the SDLC. They would like to assemble your responses in time for their next meeting in June. This would allow time to digest and provide some feedback and suggestions for next school year.

Please complete the last two columns of the table for the course(s) you taught this school year, 2002/2003. The extent to which you can give some weighting to the coverage or treatment of the topic would be helpful. You might consider a simple scale such as:

0 = not covered (or just leave it blank as the assumed default)

1 = touched on it (~15 min of class time),

2 = about one lecture period or equivalent (consider a lecture period to be 1 credit hour of a week)

3 = two - three lecture periods.

4 = 4 - 6 lecture periods.

5 = more than 6 lecture periods (about 5 hours), (a substantial portion of the course; an in depth treatment).

\* Fill in a separate copy of the form for each course, or respond with an email and make reference to the table headings.

\* In the last column, indicate the languages, software tools, and methodologies the students are exposed to and the extent of the coverage, perhaps using the same scale as above. It would also be helpful to distinguish "exposed to" through reading, lectures, in-class demos vs. actual hands-on use.

\* add to or modify the headings under Phases and Activities (the first two columns in the table) as you see fit and necessary to respond for your course(s). On some rows you will need to pay particular attention to the bullet points listed under "Activities," as in Design (the third row). Provide input for each of the bulleted points.

\* Feel free to append copies or URL pointers to course syllabii, schedule of lectures, or any other materials which will help us in mapping course content to the Phases and Activities of the SDLC.

Ask me if you have any questions. Thanks.

-gord.e.

Attachment: - SDLC - IDSc Course Mapping (excluding data in columns for Courses and Tools)

## System Development Life Cycle

Phase	Activities	Deliverables	QA Reviews Checkpoints
<b>Planning (WHY)</b>	<ul style="list-style-type: none"> <li>▪ Strategic Objectives</li> <li>▪ Global Arch.</li> <li>▪ Scoping</li> <li>▪ Priorities</li> <li>▪ BCP Requirements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategy</li> <li>▪ Architecture</li> <li>▪ Statement of Work</li> <li>▪ BCP Plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Approval</li> </ul>
<b>Analysis (WHAT)</b>	<ul style="list-style-type: none"> <li>▪ Requirements</li> <li>▪ Feasibility (technical, economic, operational)</li> <li>▪ Cost / Benefit</li> </ul>	<ul style="list-style-type: none"> <li>▪ User Requirement</li> <li>▪ Cost/Benefit Analysis</li> </ul>	<ul style="list-style-type: none"> <li>▪ Functional Requirements Walkthroughs</li> <li>▪ Requirements Certification</li> </ul>
<b>Design (HOW)</b>	<ul style="list-style-type: none"> <li>▪ Process Modeling (DFD)</li> <li>▪ Data Modeling (ERD)</li> <li>▪ User Interface (GUI, queries, reports, forms)</li> <li>▪ Platform (H/W, OS, network)</li> </ul>	<ul style="list-style-type: none"> <li>▪ System Design</li> <li>▪ Security Design</li> <li>▪ System Test Plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Peer Review</li> <li>▪ Design Walkthrough</li> <li>▪ Work Review/ Acceptance</li> <li>▪ Critical Design Review</li> </ul>
<b>Construction</b>	<ul style="list-style-type: none"> <li>▪ Definition, programming</li> <li>▪ Testing (unit, system, acceptance)</li> <li>▪ QA</li> </ul>	<ul style="list-style-type: none"> <li>▪ Source Code</li> <li>▪ Operators Manual</li> <li>▪ Turnover Package</li> </ul>	<ul style="list-style-type: none"> <li>▪ Code Walkthrough</li> <li>▪ Peer Review</li> <li>▪ Migration Turnover / Test Review</li> </ul>
<b>Implementation</b>	<ul style="list-style-type: none"> <li>▪ Conversion (direct cutover, parallel, pilot/phase)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Production System</li> <li>▪ Converted Data</li> <li>▪ Move Request</li> </ul>	<ul style="list-style-type: none"> <li>▪ System Acceptance</li> <li>▪ Security Certification</li> <li>▪ User Acceptance</li> <li>▪ Operational Readiness Review</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>▪ Problem Management</li> <li>▪ Change Management</li> <li>▪ Incident Management</li> <li>▪ Monitoring – performance, capacity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Trouble Ticket</li> <li>▪ Change Management Review</li> <li>▪ Incident Review</li> </ul>	<ul style="list-style-type: none"> <li>▪</li> </ul>
<b>Post-Impl. Review</b>	<ul style="list-style-type: none"> <li>▪ Project Evaluation (Lessons Learned)</li> <li>▪ Evaluate BCP/Contingency Plan</li> <li>▪ Audit</li> </ul>	<ul style="list-style-type: none"> <li>▪ Project Evaluation Report</li> <li>▪ Audit Review</li> <li>▪ Contingency Plan Report</li> </ul>	<ul style="list-style-type: none"> <li>▪ Post Impl. Review</li> </ul>
<b>Maintenance/ Enhancement</b>	<ul style="list-style-type: none"> <li>▪ ?</li> </ul>	<ul style="list-style-type: none"> <li>▪ Maintenance request</li> </ul>	<ul style="list-style-type: none"> <li>▪</li> </ul>
<b>Ancillary Activities</b>	<ul style="list-style-type: none"> <li>▪ Surveillance (industry, emerging technologies, tools)</li> <li>▪ Approaches (Buy vs. Build)</li> <li>▪ Management (Project Management)</li> </ul>	<ul style="list-style-type: none"> <li>▪ N/A</li> </ul>	<ul style="list-style-type: none"> <li>▪ N/A</li> </ul>

As prepared by the IDSc Executive Advisory Board on Curriculum (EABC), 2002 August.

# UNIVERSITY OF MINNESOTA

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*Carlson School of Management  
Information & Decision Sciences  
3-365 CSOM*

## **Management Information Systems** major (20 credits)

Department of Information and Decision Sciences  
within Carlson School of Management (B.S.B. degree program)

The Management Information Systems (MIS) major prepares Carlson School undergraduate students to be leaders in developing leading-edge information system applications that support business processes and management decision making. Students selecting this major receive academic preparation to understand the function of information systems in organizations, and a knowledge of and skill in the analysis, design, development, and management of information systems.

Carlson School students selecting the MIS major complete 20 credits of MIS courses in addition to the MIS core course, IDSc 3001. Sixteen of these credits are required and cover topics dealing with application system development, programming, business process analysis and design, database design and manipulation, project management, information technology infrastructure and operation, and the management of information services. For the remaining 4 credits, students select from a pool of MIS elective courses.

Students begin by taking IDSc 3001, in their sophomore year. Then in the Fall of their Junior year, they take the first 2 of the 4 required courses. This prepares them for interviewing to get an internship during the summer between their Junior and Senior years. All MIS majors are strongly encouraged to take an internship as part of their MIS program, particularly if they lack actual working experience in MIS.

### **Core Course:**

IDSc 3001 - Information Systems for Business Processes and Management (3 cr)

### **Required Courses:** (16 credits)

IDSc 3201 - Introduction to Programming for Systems Development (prereq 3001) (4cr)

IDSc 3202 - Analysis and Modeling for Business Systems Development (prereq 3001) (4cr)

IDSc 4203 - Information Technology Infrastructure (prereq IDSc 3201 and 3202) (4cr)

IDSc 4204 - Information Services Management (prereq IDSc 3202) (4cr)

### **Elective Courses:** (4 credits)

IDSc 4421 - Financial Information Systems & Technologies (prereq IDSc 3001) (2cr)

IDSc 4431 - Advanced Database Design (prereq IDSc 3202) (2cr)

IDSc 4432 - Advanced DBMS and Database Administration (coreq IDSc 4431) (2cr)

IDSc 4441 - Electronic Commerce (prereq IDSc 3001 and two major courses completed) (2cr)

IDSc 4461 - Data Warehousing (prereq 3202) (2 cr)

IDSc 4490 - Information Systems Special Topics (prereq IDSc 3202) (2cr) -may be taken multiple times

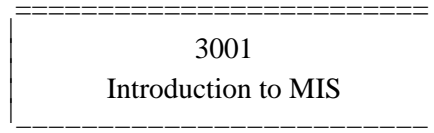
IDSc 4491 - Independent Study {Credits do not count toward completion of major} (2cr)

Go to the Carlson School, and the IDS Department web sites for more information.

**Carlson School of Management - Undergraduate MIS major 2002**

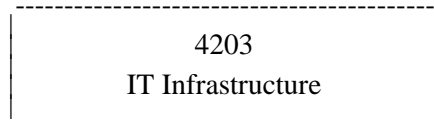
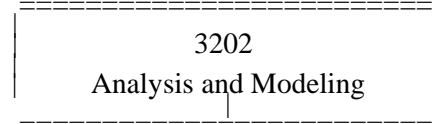
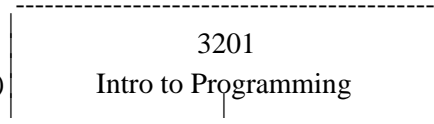
CSOM Core: (3 cr)

(taken in  
Sophomore year)



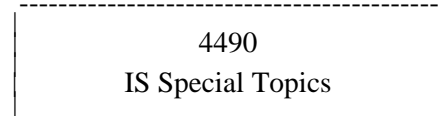
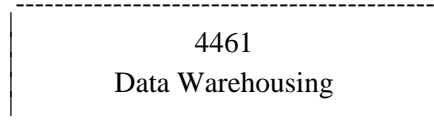
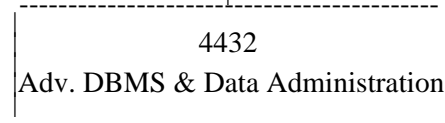
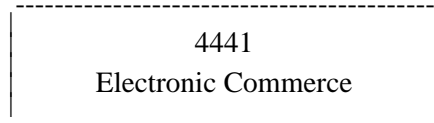
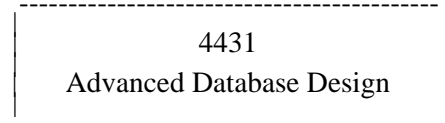
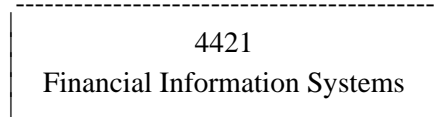
MIS Required: (16 cr)

(Both taken in  
Fall of Junior year)



MIS Electives (2 of):

(each is 2 credits)



co-requisite

We would advise MIS majors to take 3201 and 3202 concurrently in the Fall, or if not, then take 3201 first. Then beginning in the Spring you will be in a strong position to obtain a summer internship. All MIS majors are strongly encouraged to take a summer internship as part of their MIS program. Most electives can be taken concurrently with 4203 and 4204, after having completed 3202.

NOTE: The above course structure also serves non-MIS undergraduate majors:

- \* the sequence of 3001-3202- 4204 (11 cr) offers a reduced, less technical track, which could even be meaningfully reduced to just 3001 - 3202, and either with added electives.
- \* Computer Science MIS concentrations are well served by 3202+4204, not duplicating CS strengths.

## **IDSc Catalogue Course Descriptions - 2002:**

Carlson School of Management - Undergraduate MIS Major

Core Course:

### **IDSc 3001. Information Systems for Business Processes and Management.**

(3 cr; prereq [BA 1001 or experience using Windows/Internet], A-F only)

Developing/using IS to support business processes, management, and decision making. Technology components of IS, impact on organizations, creation/change processes, managerial issues. Techniques for designing, developing, implementing systems. Databases and user interfaces. Computer and communications network platforms.

Required Courses: (total of 16 credits)

### **IDSc 3201. Introduction to Programming for Systems Development.**

(4 cr; prereq 3001; A-F only) Introduction to programming and program design. Programming language syntax and control logic; user interface design; file and database access; structured, event, and object-oriented design; coding, testing, and debugging. Hands-on use of application development environment and contemporary development tools.

### **IDSc 3202. Analysis and Modeling for Business Systems Development.**

(4 cr; prereq 3001; A-F only)

Concepts/methods for business process engineering and information systems analysis and development. Data modeling, database querying using SQL, and use of database management systems (DBMS). Process modeling of work flow, data flow, and organization flow; decomposition. Traditional and object-oriented analysis with use cases and user interface design.

### **IDSc 4203. Information Technology Infrastructure.**

(4 cr; prereq 3201 and 3202; A-F only)

Technology and infrastructure for developing large-scale information systems. Processes to identify, evaluate, and select appropriate infrastructure components for an information system implementation. Application of systems analysis and design techniques in a class project.

### **IDSc 4204. Managing Information Services.**

(4 cr; prereq 3202; A-F only)

Information services as a service function. Techniques, activities, and issues for management/control of systems development at project level. Relationship of function, roles, and organizational structures. IS planning/business strategy, skill development, career pathing. Management of acquisition, subcontracting, outsourcing, operations, and user support.

Continued ... (Elective Courses)

## **IDSc Catalogue Course Descriptions - 2002:**

Carlson School of Management - Undergraduate MIS Major

Elective Courses: (total of 4 credits)

### **IDSc 4421. Financial Information Systems and Technologies.**

(2 cr; prereq 3001; A-F only)

IS in financial services, corporate financial operations, and investment management. Traditional vs. electronic financial markets, computerized trading, digital sources of financial data, electronic money, and decision technologies in financial services. Software development skills for personal investments.

### **IDSc 4431. Advanced Database Design.**

(2 cr; prereq 3202; A-F only)

Comparative review of data modeling methodologies. Advanced constructs in database design. Modeling subtypes and supertypes, ternary and higher-order relationships, integrity constraints. CASE tools; representation of facts; verbalization of a data model for human understanding and validation.

### **IDSc 4432. Advanced DBMS and Database Administration.**

(2 cr; coreq 4431; A-F only)

Managing information resources. Data planning, global information architectures. Advanced data manipulation languages, comprehensive DBMS facilities, and O-O DBMS. Analysis and data mining tools. Deploying/managing databases in a distributed environment. Data integrity, security, and privacy.

### **IDSc 4441. Electronic Commerce.**

(2 cr; prereq 3001; A-F only)

Service relationships as a conceptual basis. Evolutionary execution strategy based on application of business principles of key functions using proven product development practices. Measurement and evaluation principles/practice. Case studies from advertising, marketing, and fulfillment functions.

### **IDSc 4461, Data Warehousing.**

(2 cr; prereq 3202; A-F only)

Designing, developing, using, and managing data warehouses to provide information and decision support to management. Architecture, dimensional analysis, and multidimensional modeling; star schema design; data extraction and cleansing; supporting business intelligence (BI) through online analytical processing (OLAP) and data mining; deployment and management of a data warehouse.

### **IDSc 4490. Information Systems Special Topics.**

(2 cr; prereq 3202; A-F only; - may be taken multiple times)

Discussion and analysis of current topics and developments in information systems.

### **IDSc 4491. Independent Study in Information Systems.**

(1-4 cr; prereq #; Credits do not count toward completion of major, A-F only)

### **IDSc 4496. Information Systems Industry Internship. \*\*\* NOT CURRENTLY OFFERED \*\*\***

(2 cr; prereq &3202; A-F only)

Learning by working in IS activities and receiving appropriate training from a sponsoring organization. Custom designed to meet pre-established learning objectives. "Work practice" plan required and must be approved by the organization and the director of IDSc undergraduate studies.