

California State University, Long Beach  
S.A.G.E.  
Student Achievement in General Education

Standard Course Outline for General Education

## 1. General Information

- A. Course number: IS 200 (\*Course renamed to IS 100 in November 2009 catalog)
- B. Title: Information Technology Literacy
- C. Units: 3
- D. Prerequisites: None
- E. Responsible faculty: C. Sophie Lee, Professor of Information Systems (solee@csulb.edu)
- F. SCO Prepared by: C. Sophie Lee
- G. Date prepared/revised: May 21, 2009/November 9, 2009

## 2. Catalog Description

Critical thinking and information literacy skills through information needs assessment, information gathering, diagnosis, synthesis, deductive and inductive reasoning, and reporting and presentation using information technologies.

## 3. Curriculum Justification(s)

*The proposed course is a 3-unit GE course in the Critical Thinking category (Category A3).*

The National Council for Excellence in Critical Thinking has defined a well cultivated critical thinker as:

- raises vital questions and problems, formulating them clearly and precisely;
- gathers and assesses relevant information, using abstract ideas to interpret it effectively;
- comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;
- thinks openmindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; and
- communicates effectively with others in figuring out solutions to complex problems.

Excerpted from a statement by Michael Scriven & Richard Paul  
for the National Council for Excellence in Critical Thinking

At this information explosive age, the ability to locate, evaluate, and use effectively the needed information, or “information literacy”, has become one of the basic “literacies” required by all citizens

- “... the ability to locate, evaluate, and use effectively the needed information.”  
The American Library Association's (ALA) Presidential Committee on Information Literacy, Final Report, 1989.
- “A new liberal art that extends from knowing how to use computers and access information to critical reflection on the nature of information itself, its technical infrastructure and its social, cultural, and philosophical context and impact.”  
Jeremy Shapiro & Shelley Hughes, 1996
- “Information literacy is becoming a more important part of K-12 education. It is also a vital part of university-level education”  
Association of College Research Libraries, 2007

- On May 28, 2009, U.S. California Governor Arnold Schwarzenegger posted an Executive Order establishing a California ICT Digital Literacy Leadership Council and an ICT Digital Advisory Committee.

Office of the Governor, <http://gov.ca.gov/executive-order/12393/>

- On October 1, 2009, U.S. President Barak Obama's designated October 2009 "National Information Literacy Awareness Month"

[http://www.whitehouse.gov/the\\_press\\_office/Presidential-Proclamation-National-Information-Literacy-Awareness-Month/](http://www.whitehouse.gov/the_press_office/Presidential-Proclamation-National-Information-Literacy-Awareness-Month/)

The ability to identify, collect, analyze, and synthesize diverse data and information has become an integral part of critical thinking and information literacy. The fluency and knowledge of information technology and its tools plays a key role in the success of this endeavor. Given this information explosive phenomenon, a vast majority of – if not all -- information that we know of today are stored or can be accessed by some form of information technology. When facing large amount of data, one needs to utilize information technology to properly synthesize, analyze, and make sense of the data into information. Tools are available to effectively communicate and present such information to the audience. One should also learn how to use and communicate information ethically and legally, as a responsible social citizen. In summary, the impact of technology has pervaded to all facets of the society, and changes how we work, think, and function. Understanding and utilizing information technologies is no longer a specialized knowledge acquired by technical professionals only; it has become an imperative and essential skill set for every student.

It is evident that the three skills – critical thinking, information literacy, and information technology literacy – are synergic in nature. The proposed IS 200 course is to provide CSULB General Education students critical thinking and information literacy skills by using information technology. The objectives of this course are to prepare students

- with critical thinking skills
- to become information literate
- to become information technology literate
- the ability of argument formation and information needs assessment
- the ability of information retrieval, access, and authentication
- the ability of information diagnosis, synthesis, and analysis
- the ability of inference and evaluation
- the ability of information reporting and presentation
- with an understanding of social responsibilities of information use

The highlights of the course include:

- Information technology literacy tools are introduced to students with the purpose of enhancing critical thinking and information literacy.
- Critical thinking and information literacy is taught through a semester-long, comprehensive project case. By introducing a case study with diverse and vast amount of data and information, the course brings in the sense of relevance and enhances students' understanding in critical thinking.
- Critical thinking skills are emphasized throughout the curriculum. Almost every step of information literacy model is an application of critical thinking. For instance, the use of inductive and deductive reasoning is not only used in data analysis, it is used as early as forming a search strategy.

- It brings to students the formality of data analysis. Many students have the misconception of finding everything on google or online; while this course introduces them the formal and latest methodologies of digital data search and analysis.

The Department of Information Systems is home to 13 highly qualified tenured and probationary Doctors in Philosophy (Ph.D.s) in quantitative methods, information systems, and business communications. IS 200 is a way for them to share and integrate their expertise to deliver this vitally important and exciting topic to general education students.

#### **4. Measurable Student Learning Outcomes, Evaluation Instruments, and Instructional Strategies for Skill Development**

##### **Course Objectives:**

The objectives of this course are to prepare students

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- to become information technology literate
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- the ability of inference and evaluation
- the ability of information reporting and presentation
- with an understanding of social responsibilities of information use

##### **GE Program Student Learning Outcomes (per PS 08-00):**

###### **2.2 Intellectual and Practical Skills**

- Critical Thinking
- Information Literacy and Technology Literacy

###### **2.3 Personal and Civil Responsibility**

- Foundation and Skills for Life-Long Learning

##### **MEASURABLE OUTCOME:**

Upon completion, students will be able to

- demonstrate the ability to think critically
- demonstrate the understanding of inductive and deductive reasoning
- become information literate
- become information technology literate
- utilize information technology for critical thinking and information literacy
- understand relationship between information and data analysis
- demonstrate ability of argument formation and information needs assessment
- demonstrate ability of information retrieval, access, and authentication
- demonstrate ability of information diagnosis, synthesis, and analysis
- demonstrate ability to make inference and evaluations of information
- demonstrate ability to report and communicate information effectively
- demonstrate an understanding of the social responsibilities of information use

##### **EVALUATION INSTRUMENTS:**

- Typical assignments include quizzes, homework, project cases, and exams.

- Homework and project that required hands-on demonstration of information technologies

**INSTRUCTIONAL STRATEGIES:**

- Class lecture, in-class demonstration, project case, computer hands-on practices.

**5. Outline of Subject Matter**

**Introduction** (*1 week*)

- Critical Thinking
- Information Literacy
  - The Big6 Standards of information literacy
  - The independent learner
- Role of Information Technology
- Overview of the Project Case
  - Provide a semester-long, comprehensive project case

**Information vs. Data Analysis** (*1 week*)

- Techniques of data analysis
- Survey and location of data
  - Internet and world wide web
  - Understand database and query
  - Discipline specific database

**Argument Formation** (*2 weeks*)

- Understand argument and fallacy
- Inductive reasoning
- Deductive reasoning
- Information needs identification and assessment
  - Identify and assess information needs
  - Locate information
  - Information quality

**Information Retrieval, Access, and Authentication** (*2 weeks*)

- Search Strategy
- Information Access and Authentication
  - Access information effectively and efficiently
  - Information authentication and provenance
- Evaluation and collection of diverse sources of information
- Global information systems

**Information Diagnosis, Synthesis and Analysis** (*4 weeks*)

- Information diagnosis
- Information synthesis
- Information analysis
- Large data analysis with information technology
- Unstructured data analysis with information technology
- Data mining and text mining
- Data integration

**Inference and Evaluation** (*2 weeks*)

- Decision support

- Business intelligence
- Knowledge management

### **Reporting and Communication (2 weeks)**

- Information visualization and presentation
- Human computer interface

### **Social Responsibilities of Use of Information (2 weeks)**

- Information Assurance and Security
- Ethical use of information
  - Understand the importance of information to a democratic society
  - Information and privacy issues
  - Communicate information ethically
  - Case study on ethical issues of information use
- Legal Issues of information use
  - Intellectual property
  - Copyright
  - Plagiarism
  - Cyber crime
  - Case study on legal issue of information use

This is a broad outline of topics to be covered. Subject matter and sequence of topics may vary by instructor.

## **6. Methods of Instruction**

The preferred method for this course is **lecture based**. Depending on the individual instructors, opportunities for class discussion, group work, and student presentations may be considered. Instructors are required to assign **hands-on homework and project** that require students to perform problem-solving and critical thinking skills using information technology, such as spreadsheet, database management systems, telecommunication, networking and/or web-based system.

## **7. Extent and Nature of Technology Use**

Instructors will assign homework, exercises, case studies, and/or projects that involve technology use of internet, web-based search engine, spreadsheet, or database.

## **8. Information about Textbooks / Readings**

### Text:

1. Critical Thinking: A Student's Introduction, by Bassham, Irwin, Nardone, and Wallace, McGraw-Hill Humanities/Social Sciences/Language, 3<sup>rd</sup> Ed, 2007.
2. Information Literacy and Information Skills Instruction, by Thomas, Libraries Unlimited, 2<sup>nd</sup> Ed, 2004. ISBN 1591580811.
3. Computing Essentials 2008 Complete Edition, by Timothy O'Leary and Linda O'Leary, Career Education, 29<sup>th</sup> Ed., 2007.
4. Microsoft Office 2007 – Illustrated Brief, by Marjorie Hunt and Barbara Waxer, Course Technology, 1<sup>st</sup> Ed, 2007.

### Software:

Microsoft Office - Available for a site license from 49er Bookstore – 2<sup>nd</sup> floor.

## 9. Instructional Policies Requirements

Instructors may specify their own policies with regard to plagiarism, withdrawal, absences, etc., as long as the policies are consistent with the University policies published in the CSULB Catalog. It is expected that every course will follow University policies on Attendance (PS 01-01), Course Syllabi (PS 04-05), Final Course Grades, Grading Procedures, and Final Assessments (PS 05-07), and Withdrawals (PS 02-02 rev).

All sections of the course will have a syllabus that includes the information required by the syllabus policy adopted by the Academic Senate. Instructors will include information on how students may make up work for excused absences. When class participation is a required part of the course, syllabi will include information on how participation is assessed. When improvement in oral communication is an objective of the course, syllabi will include a rubric for how oral communication is to be evaluated.

## 10. Distance Learning / Hybrid Courses

IS 200 will first be offered as a regular course. We may explore distance learning/hybrid teaching as offerings progress.

## 11. Bibliography

This is a highly selective bibliography to provide instructors with a primary set of resource materials. For brevity, important works may be missed from this list. The list is intended to show the range of materials available to our students. Relevant course materials may also be found in periodicals, both in print and electronic form.

### Critical Thinking

- Critical Thinking, by Moore and Parker, McGraw-Hill Humanities/Social Sciences/Language, 9<sup>th</sup> Ed, 2008. ISBN 0073386677.
- Asking the right Questions: A Guide to Critical Thinking, by Browne and Keeley, 8<sup>th</sup> Ed., Prentice Hall, 2006. ISBN 0132203049.
- Making Better Business Decisions: Understanding and Improving Critical Thinking and Problem-Solving Skills, by Williams, Sage Publishing, 2002.
- Critical Thinking: A Student's Introduction, by Bassham, Irwin, Nardone, and Wallace, McGraw-Hill Humanities/Social Sciences/Language, 3<sup>rd</sup> Ed, 2007.

### Information Literacy

- Information Literacy, by Eisenberg, Lowe, and Spitz, Libraries Unlimited, 2<sup>nd</sup> Ed, 2004. ISBN 1591581435.
- Teaching Information Literacy: 35 Practical, Standards-based Exercises for College Students, by Burkhardt, Macdonald, and Rathemacher, American Library Association, 2003. ISBN 0838908543.
- Information Literacy and Information Skills Instruction, by Thomas, Libraries Unlimited, 2<sup>nd</sup> Ed, 2004. ISBN 1591580811.
- A Practical Guide to Information Literacy Assessment for Academic Librarians, by Radcliff, Jensen, Salem, Burhanna, and Gedeon, Libraries Unlimited, 2007. ISBN B00272M81S.
- Faculty Development Companion Workbook Module 17: Teaching Information Literacy, 1st Edition, Amy Solomon, MS, OTR, Quantum Integrations, ISBN-10: 1418050202 ISBN-13: 9781418050207, Delmar Cengage Learning, 2007.

### IT Literacy

- Introduction to Information Systems with MISSource 2007, by James O'Brien and George Marakas, McGraw-Hill/Irwin, 14<sup>th</sup> Ed., 2007.
- Introduction to Information Systems: Supporting and Transforming Business, by R. Kelly Rainer and Efraim Turban, Wiley, 2<sup>nd</sup> Ed., 2008.
- Business Driven Information Systems, by Paige Baltzen and Amy Phillips, McGraw-Hill/Irvine, 1<sup>st</sup> Ed., 2006.
- Computing Essentials 2008 Complete Edition, by Timothy O'Leary and Linda O'Leary, Career Education, 29<sup>th</sup> Ed., 2007.
- Discovering Computers: Fundamentals, by Gary Shelly, et. al., Course Technology, 4<sup>th</sup> Ed, 2007.
- Understanding Computers: Today and Tomorrow, by Deborah Morley, Course Technology, 12<sup>th</sup> Ed., 2008.
- Using MIS, by David Kroenke, Prentice Hall, 2<sup>nd</sup> Ed, 2008.
- The O'Leary Series: Windows XP – Brief, by Timonty O'Leary and Linda O'Leary, Career Education, 1<sup>st</sup> Ed, 2002.
- Microsoft Office2007 (The O'Leary), by Timothy O'Leary and Linda O'Leary, Career Education, 1<sup>st</sup> Ed, 2007.
- New Perspectives on Microsoft Office 2007, First Course, Windows XP Edition, by Ann Shaffer, et. al., Course Technology, 1<sup>st</sup> ed., 2007.
- Exploring Microsoft Office 2007, by Robert Grauer, Prentice Hall, 2<sup>nd</sup> Ed., 2008.
- Microsoft Office 2007 – Illustrated Brief, by Marjorie Hunt and Barbara Waxer, Course Technology, 1<sup>st</sup> Ed, 2007.

## **12. Student-Level Assessment**

The exact set of course assignments will vary depending on the instructor. University policy requires that no single evaluation of student achievement may count for more than one-third of final grade.

Appropriate assignments may include:

- A. Exams: One or two mid-term exams and a final exam.
- B. Homework: Required, with at least 50% of the homework on hands on practice of computer systems or programs.
- C. Project case: Required, using information technology to perform complex data and information analysis
- D. Oral or poster presentations (optional)

## **13. Course-Level Assessment Plan**

The Information Systems Department has opted to participate in the SAGE Collaborative Track course assessment and recertification system for the evaluation of Shared Student Learning Outcomes in General Education. The Department has elected to participate in the following tracks:

- Critical Thinking
- Information Literacy and Technology Literacy
- Foundation and Skills for Lifelong Learning

A Track Selection Form is attached with this proposal.

## **14. Additional Resource for Development of Syllabi**

The Academic Senate has adopted a policy specifying required content for course syllabi. Instructors are encouraged to consult the Academic Senate web site for further information.

## **15. Disabilities**

Students with disabilities are responsible for notifying their instructor as early as possible of their needs for an accommodation of a verified disability. A student with a disability is urged to consult with Disabled Student Services as soon as possible in order to identify possible accommodations to enhance academic success.