

CS100

Foundations of Computer Science and Information Assurance

Prof M. E. Kabay, PhD, CISSP-ISSMP
School of Business & Management, Norwich University

Course Description in University Catalog

CS100 is a survey of computing and information assurance for computer science and information assurance majors. The course focuses on learning to use key concepts and terminology across information technology, computer science, networking and information security. Discussions regarding computing ethics, safety and professionalism are included throughout. (3 credits)

Course Objectives

By the end of this course, students will be able to discuss the following issues at an introductory level using appropriate technical terms:

- What does it mean to be “computer literate” in today’s society?
- How did personal computers develop in the late 20th century?
- What are the components of personal computers?
- How did the Internet develop? How does it work? How can you use it effectively?
- What is application software? How are the different types of applications obtained and used?
- What is system software? How do operating system features help users work effectively?
- How does one evaluate computer hardware to be sure that components meet user needs?
- How can we connect computers to each other and keep them safe from hackers and malware?
- How do we backup our data for safety?
- What are the advantages and limitations of mobile computing?
- How is digital entertainment evolving?
- What are some of the details of system hardware?
- How do computer professionals build applications?
- What are compilers and interpreters?
- How do databases fit into modern information systems?
- How do modern organizations use business networks, client/server systems, P2P, and different network topologies?
- Who owns the Internet? How does the Internet work? What are TCP? IP? DNS? FTP? Telnet?
- What are HTTP, HTML, CGI, SMTP, IM, VoIP, and encryption?

Course Schedule & Location

Tuesdays and Thursdays in U295 from 10:50:03 to 12:04:57.

Text

Evans, A. K. Martin, & M. A. Poatsy (2016). *Technology in Action, Complete*, 12th Edition. Prentice Hall / Pearson Education (ISBN 978-0-13-394956-8).

Methods of Assessment

- Weekly quizzes (50% of final grade)

CS100 Course Description

- There is an online quiz on the *previous* week's lecture and readings due by 23:55 on the Friday of the current week.
- Mid-term exam (15% of final grade)
 - Covers material of first portion of course as defined in Syllabus.
- Final exam (35% of final grade)
 - Covers material of entire course as defined in Syllabus. One-third of the exam is on the portion originally tested in the mid-term exam and the rest tests for topics in the second part of the course.
- Extra Work:
 - Additions to class discussions on NUoodle will be granted supplementary credit for substantive, thoughtful and thought-provoking contributions.
 - Students may submit extra work by permission of the instructor for extra points on their final grade.
 - Students must ask for permission of a specific instructor who will agree to grade their work before writing and submitting any extra work.
 - For example, the instructor can agree to accept suitable short essays such as summaries of interesting articles or books relevant to the course materials.
 - The rate granted for extra work is up to 1 point added to the *final* grade for 250 words of good writing. Thus a 1,000 word essay with suitable references could improve the final grade by up to 4 points. The assigned number of points depends on the quality of the research and writing.
 - Other projects for more advanced students can include in-class lectures for programming demonstrations, hardware configurations, network-related demonstrations, demonstrations based on the extra resources from the textbook Website and so on. Students should discuss these ideas *in advance* with the instructor to plan content and scheduling and to reduce duplication of work from other students. Extra points will be negotiated on a case-by-case basis.

Cheating and Plagiarism

Students are graded on an individual basis and must therefore complete their own work. Students are reminded of the University's Policy against cheating and plagiarism (see p 78 ff of the PDF version of the *Academic Regulations* available online at < <http://about.norwich.edu/policy/academic/> >). Ignorance of the University's Rules is not a valid defense against accusations of academic dishonesty. If in doubt as to what constitutes plagiarism, ask before submitting assignments. Instances of *suspected* cheating and plagiarism will be reported to the Academic Integrity Committee. Penalties include zero grades for assignments, F grades in courses, one-semester withdrawals from the University, and permanent expulsion from the University.

Attendance Policy – no more than two unexcused absences

University regulations stipulate that “Unless stated otherwise, the maximum number of permitted absences is the number of times the course meets per week. When the student has reached the maximum number of permitted absences, the faculty member will warn the student of impending dismissal from class with a grade of ‘F.’ This warning letter will include the course number and section and dates(s) of absence(s). The letter will state that any future unexcused absences may result in recommendation to the Vice President of Academic Affairs through the course School Dean that the student be dismissed from the class with a grade of ‘F.’ A copy of the warning letter will go to the student's academic advisor and to the Commandant and Vice President of Student Affairs.” (See pp 69-70 of the PDF version of the *Academic Regulations* available online at < <http://about.norwich.edu/policy/academic/> >.) *Note that students who have completed a waiver exam acceptably for a specific week may be excused from that week's classes.*

CS100 Course Description

Notes

- There will be no *grading on a curve*. There are no predetermined numbers of final letter grades. If everyone gets A, the instructor will rejoice and be able to prove that everyone earned their grades. If everyone gets F, the instructor will be sad but will still be able to prove that everyone earned their grade.
- Advanced students are encouraged to help other students and to contribute actively during lectures. Everyone benefits from active participation in class and from generosity towards others.
- Students are encouraged to study together but may not collaborate during exams. Students are individually responsible for all assigned readings, lecture, and discussion materials, unless otherwise noted.
- The minimum pass mark for this course for students intending to continue in their computer-related major is a C (74%). Students who pass the course with less than 74% will have to retake the course to complete their major (with a maximum of one additional attempts).

About Your Instructor

M. E. Kabay began teaching his high school classmates how to use the slide rule in 1963 (age 13) and tutored students who were failing matriculation mathematics at that time (NOT the best way to become popular). He began programming IBM 1401 computers in assembly language in 1965. In 1976, he received his PhD from Dartmouth College in applied statistics and invertebrate zoology (WHAT?!) and taught statistics and programming at Université Nationale du Rwanda (in French) for the Canadian International Development Agency and then statistics courses and a human physiology course as a university professor at Université de Moncton in New Brunswick, Canada. In 1979, he joined a compiler team for a new 4GL and RDBMS in the US and wrote the syntax, the parser and the code generator for a set of statistical functions in the compiler. In 1980 he joined Hewlett-Packard Canada in 1980 as an operating-systems internals and database-performance specialist. He won the HP Canada *Systems Engineer of the Year Award* in 1982. His teaching for HP was primarily on the MPE/3000 operating system, IMAGE/3000 database and VPLUS/3000 GUI-design courses. He served as support engineer to HP's hospital and university customers in Montreal and Ottawa; he also managed HP's bilingual help-desk call center (*Phone-In Consulting Service*) for Québec & the Maritime provinces.

From 1991 to 1999, he served as Director of Education for the National Computer Security Association (NCSA, later called ICSA and then TruSecure and now Verizon's Business Security Solutions) and then worked briefly with AtomicTangerine until 2001; there, he supported the *International Institute for Information Integrity*® (I-4®). He collaborated in the committees defining the *Common Body of Knowledge* for the *Certified Information Systems Security Professional* (CISSP) designation in the mid-1990s and earned his CISSP in 1997 and his ISSMP (*Information Systems Security Management Professional*) in 2005.

Since 1986 (and as of the end of 2015), he has published over 4,000 articles in operations management and security, written a college textbook on enterprise security (McGraw-Hill, 1996), and served as Technical Editor of the 4th (2002), 5th (2009) and 6th

(2014) editions of the *Computer Security Handbook* (Wiley). He wrote two security-management columns a week distributed by *Network World* from February 2000 to September 2011 and published one a week in the *InfoSec Perception* blog from October 2011 through November 2013.

He has been an invited lecturer at the United States War College, the Pentagon, NATO HQ in Brussels, and at NATO Counterintelligence training in Germany. He led the internal delegation of security experts to China in 1994. He was inducted into the Information Systems Security Association (ISSA) *Hall of Fame* in December 2004.

From January 2002 to June 2009, he was the Founding Director of the *Master's Program in Information Assurance* (MSIA, now MISA) in the College of Graduate and Continuing Studies (SGCS) at Norwich University, Northfield, Vermont where he was also the Chief Technical Officer of the CGCS from 2007 to 2009.

From June 2001 to April 2011, Dr Kabay was Associate Professor of Computer Information Systems in the School of Business and Management and became Professor of Computer Information Systems in May 2011. He was appointed Associate Director of the *Norwich University Center for Advanced Computing and Digital Forensics* in July 2011.

Dr Kabay also serves as Acting Chief Technical Officer of a high-tech startup, *Adaptive Cyber Security Instruments, Inc.* He is a Strategic Consultant for On Point Cyber, a firm specializing in sales of the dzAudit 5th generation programming language. His LinkedIn page is < <http://www.linkedin.com/mkabay/> > and his Website is < <http://www.mekabay.com> >.

Students are welcome to *friend* him on Facebook < <https://www.facebook.com/> > for a stream of links to interesting information-security and high-technology articles (mostly from *The Guardian*, *BBC News* and *New York Times*) with frequent forays into radical left-wing politics, anti-racism, gay and transgender rights, culture and humor.

