

# Student Success - Interweaving Skills for Success in Computer Introductory Courses

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## Abstract

For many years, students have been required to complete a three credit-hour computer literacy course or show mastery of computing concepts as a part of their core requirements when pursuing an undergraduate degree. However, starting with the Fall 2014 semester, Texas public college and university core requirements were drastically revised. Included in this revision was the removal of the required Introduction to Computers/Computer Literacy course from the core curriculum. In its place, students were to choose and complete a three credit-hour course from a list of freshman courses that included student success skills as a part of the course learning outcomes. To ensure that students had an option to complete a computer literacy course the original computer literacy course was extensively revised to include topics and assignments that address student success skills. The addition of student success skill learning outcomes to the computer literacy course allowed it to be included on the list of freshman courses students could take towards their core requirements. This paper reviews the required computer literacy course prior to its elimination from the core and describes the new multifaceted course that weaves computer technology concepts and skills with student success skills to meet the new core curriculum requirements.

**Keywords:** Introduction to Computers, Computer Literacy, Core Curriculum, Student Success

## 1. BACKGROUND

Faculty at colleges and universities all over the country are now being confronted with the necessity to review and revise their core curricula to meet the changing needs of present and future students. This is being initiated by legislatures, governmental advisory staff, and the general public at large. Current college core curricula are based on requirements that have been in place for several years.

This paper is based on the experiences of a 4-year undergraduate and Masters level institution located in a large metropolitan area in

southeastern Texas. Specifically, this university is accredited by the Southern Association of Colleges and Schools Commission on Colleges. Students are all commuters since there is no campus housing available. There are 13,757 undergraduate students. Enrollment consists of 60% female students and 40% male students; 50% are full time students and 50% are part time students. 76% of students are 30 years of age or under.

In March 1999, the Texas Higher Education Coordinating Board (THECB) decided to develop a new higher education plan. In April 1999, a Coordinating Board Planning Committee was

appointed to develop a new higher education plan. Later in the year (September) business community representatives, community leaders, and former higher education governing board members from around the state were added to the committee.

Almost ten years later, in January 2009, the Undergraduate Education Advisory Committee (UEAC) suggested to the Texas Higher Education Coordinating Board (THECB) that the statewide general education core curriculum should be revised to ensure that the core delivered both current and future knowledge and skills. With this directive, the UEAC developed recommendations for a revised Texas Core Curriculum centered on increasing student learning and improving student success. The recommendations were outlined in the Revising the State Core Curriculum: A focus on 21st century competencies report.

In August 2011, the TCB approved the revision to a new core curriculum to include 42 semester hours of foundation component area courses addressing six core curriculum objectives. The Six Core Curriculum Objectives were defined as:

1. Communication Skills:
  - a. effective development, interpretation and expression of ideas through written, oral and visual communication;
2. Critical Thinking Skills:
  - a. creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information;
3. Empirical and Quantitative Skills:
  - a. the manipulation and analysis of numerical data or observable facts resulting in informed conclusions;
4. Teamwork:
  - a. The ability to consider different points of view and to work effectively with others to support a shared purpose or goal;
5. Social Responsibility:
  - a. Intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities; and
6. Personal Responsibility:
  - a. The ability to connect choices, actions and consequences to ethical decision-making.

Per the Texas Education Code, §§61.821 - 61.832:

"Each institution of higher education that offers an undergraduate academic degree program shall design and implement a core curriculum, including specific courses composing the curriculum, of no less than 42 lower-division semester credit hours."

Regarding the Transfer of Credit, it was stated:

"If a student successfully completes the 42 semester credit hour core curriculum at a Texas public institution of higher education, that block of courses may be transferred to any other Texas public institution of higher education and must be substituted for the receiving institution's core curriculum."

Additionally, regarding the transfer credit: "a student shall receive academic credit for each of the courses transferred and may not be required to take additional core curriculum courses at the receiving institution."

The TCB requirements defined 36 of the 42 semester credit hours and were chosen in eight specific foundation areas:

1. Communication (6 SCH)
2. Mathematics (3 SCH)
3. Life and Physical Sciences (6 SCH)
4. Language, Philosophy, and Culture (3 SCH)
5. Creative Arts (3 SCH)
6. American History (6 SCH)
7. Government/Political Science (6 SCH)
8. Social and Behavioral Sciences (3 SCH)

The 9<sup>th</sup> Component Area Option represents (6 SCH) and includes courses which each have focuses from one of the eight foundation areas.

## 2. INTRODUCTION

Beginning in Fall 2014, computer education in many Texas public colleges and universities went through a drastic revision with the removal of the required introduction to computers/computer concepts class and skills requirement from the core curriculum. For many years, students have been required to complete a course in computing concepts as a part of their required course of studies when pursuing an undergraduate degree. This requirement was satisfied in many different ways, depending on the university. Several different options existed: a computer concepts course, a computer programming course, a course that introduced the use of basic computer skills, and another option that introduced some blend of each of these.

First, the computer concepts class was designed to teach basic computer concepts which may have varied depending on the discipline, the instructor, the textbook selected and the resources at hand. These topics would and did vary: the history of computing, introduction to computing, input devices, output devices, storage devices, the central processing unit, networking, teleprocessing, databases, systems development, and more.

Second, the programming class was often used to introduce the use of the computer via the development of programming skills. Over the years, languages such as: BASIC, COBOL, GWBASIC, C, C++, C#, LOGO, JAVA, VISUAL BASIC, ALICE, PYTHON, and other languages have been used as instructional tools in the introductory computing classroom. Programming concepts have been used to illustrate the kind of work that can be undertaken by the computer: how to input data, how to handle computations, how to output data for use later and how to output data and information for immediate display, how to save data, how to describe data and more was defined, described, practiced and tested.

The third option consisted of courses that provided students with developing skills that would help them as they continued their education and that would provide marketable business skills such as word processing, spreadsheet use and development, presentation development software, and database management system software. Often students would be introduced to webpage development utilizing HTML, XHTML or software such as Dreamweaver.

A fourth option was a course that provided a blend of these techniques. The course would include some combination of concepts, programming, and/or technical skill development.

With the elimination of the requirement for the inclusion of computer concepts as a part of the core curriculum, one university has devised a course that students could take as a part of the 6 semester credit hour - Component Area Option 9.

### **3. ONE SCHOOL'S COURSE ANSWER: COMPONENT AREA OPTION 9**

To meet the component area option, one university has chosen to include the

implementation of a 3-Credit Hour Academic Freshman Seminar which develops the objectives and skills described in the communications component area of the core with supplemental instruction in computing and technology. It complements and supplements learning in a core course in the communications component area while satisfying the TCB Requirements and providing computing instruction. Please note, when considering the loss of the computing core course requirement: How do we make sure that today's students possess computing competencies? How do we make sure they are able to use the various technology tools to succeed in college and beyond? Simply, these outcomes are the purpose of this course. It is designed to assist students in developing and applying computing concepts in a communications course, providing them with tools to assist them in achieving success in their college courses and beyond. This three credit hour course maps the TCB's course communication objectives requirements into a traditional course with supplemental instruction in the utilization of computing and technology related topics.

#### **Course Description**

The course description for the Component Area Option 9 course is defined as:

*This course will utilize fundamental principles of communication, the Internet, and digital technology tools to enhance communication skills in face-to-face and virtual environments. This course explores ways that the Internet can be used to effectively supplement communication. Course work will be geared to enhance students' written, oral and visual communication; develop their analytical and critical thinking abilities; encourage collaboration and team work; and promote ethical communication. This course will utilize active and adaptive learning strategies to better equip students with the knowledge and behaviors necessary to successfully complete the UHD core curriculum and the upper-division coursework related to the major they choose, while helping to prepare them for success beyond graduation from college as responsible citizens in the community at large, regardless of their major. Strategies for academic success are practiced within the context of the area of communications.*

#### **Course Topics**

The course topics include the following:

- Defining and describing the Internet
- Understanding the basics of communicating using the Internet, the Web, and Internet services
- Discovering how the Internet enhances the way we communicate
- Noting the advantages of effective communication using the Internet, the Web & Internet services
- Communicating orally with enhancements that utilize appropriate technology
- Writing Good news, Bad news, Persuasive, and Neutral messages and effectively communicating the information
- Utilizing listening skills and team communications, and handling difficult conversations and team conflicts
- Communicating through the use of visuals in written and oral communications
- Sharing informative messages with appropriate technology
- Communicating successfully across cultures
- Using the Internet and Web tools for communicating and improving productivity effectively
- Safely communicating in a connected World with email, websites, social media, blogging, wikis, and more

### **Required Learning Outcomes**

The required learning outcomes for this course include:

- Use readings appropriate for the discipline as a tool of inquiry, for information, and as a means to develop and support written, oral, and visual messages.
- Use research and analysis to develop written, oral and, where appropriate, visual messages which are appropriate for the discipline, intended audience, and mode of communication.
- Listen actively, evaluate, and critically analyze spoken discourse.
- Observe rules of plagiarism to use and cite resources appropriately.
- Work effectively with others to support a shared purpose or goal.
- Research and define academic and career goals within the discipline and develop learning strategies to support academic success and attainment of academic and career goals.

### **Means of Demonstrating Learning Outcomes**

The means of demonstrating the above mentioned learning outcomes include:

- Students will read various discipline-related topics, analyze the information, generate reports, and create multimedia slide presentations.
- Students utilize the Internet and online databases to research a technology-related topic, digital communication, or collaboration in the virtual world; gather and organize the information in a spreadsheet, and analyze the information; create a written report and a multi-media presentation which includes text, graphs, charts and sound. Students will develop polls and utilize other web tools via the Internet to supplement their findings.
- Students utilize active listening techniques when participating in online oral (only) group communication activities, participate in class discussions, and follow instructions regarding individual and group communications.
- Students use Internet and technology tools which support the appropriate citation of sources
- Students will use digital tools to collaborate on teams on a research topic and learn about the process of working in teams and ways to manage team conflicts. Each student will join a team; select, discuss, and develop the research topic; discuss the findings; and compare results with other teams.
- Students choose a possible career path, research an entry-level position in that career and determine academic degree requirements for an entry-level position in that career area.

For a complete list of required learning outcomes and the associated means of demonstrating learning outcomes, see Appendix Table 1.

### **Course Materials**

This course utilizes a customized textbook with topics selected to meet the requirements stated in the course outcomes. In addition, selected websites are referenced for coverage of computer technology. Furthermore, simulation software is included to provide instruction and review of some of the computing/office tools.

Student learning is assessed via tests, quizzes, and assignments.

#### 4. CONCLUSION

The inclusion of the computer literacy courses in the core curricula requires students to address much needed computer knowledge and skill to prepare for careers in the computer age. In addition, the requirement introduces freshman students to the Computer Information Systems area of studies, which results in recruitment of Information Systems students. The elimination of the computer literacy course from the core curricula across the State of Texas will negatively impact computer education in the State of Texas, not to mention decrease the number of students who could have been enticed to study Information Systems. If the trend spreads through the educational system across the USA, the national IS curriculum will have to be revisited and revised to address the lack of computer foundation knowledge and skills.

A review of the core curriculum catalog descriptions at a number of Texas universities, including Texas Tech University, Stephen F. Austin University, University of Houston and several other schools in the State of Texas, reveals that, although a variety of courses are included in the Core, there are no core curricula courses that combine computer literacy, written and oral communication, and student success skills. Although there may be several other

approaches to include computer literacy in the core curriculum, this approach seems unique.

With the implementation of the Component Area Option 9 course, students have an opportunity to improve their communications skills during their introduction to computing concepts and master technology skills. In compliance with the new core curricular requirements, this new course successfully weaves computing instruction into a new foundation area. Finally, since the new course has been taught for only one year, there is not sufficient data to drive any hypothesis. However, the authors plan to continue collecting data for analysis and will report on the effectiveness of the course.

#### 5. REFERENCES

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Texas Education Code, §§61.821 - 61.832

[http://info.sos.state.tx.us/pls/pub/readtac\\$ext.TacPage?sl=R&app=9&p\\_dir=&p\\_rloc=&p\\_tloc=&p\\_ploc=&pg=1&p\\_tac=&ti=19&pt=1&ch=4&rl=28](http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=19&pt=1&ch=4&rl=28)

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## Appendix

Table 1: The required Learning Outcomes for this course:

Learning Outcomes	Means of Demonstrating Learning Outcomes
<p>Use readings appropriate for the discipline as a tool of inquiry, for information, and as a means to develop and support written, oral, and visual messages</p>	<p>Instruction and Related Readings:</p> <ul style="list-style-type: none"> <li>• Defining terms: the Internet, Web tools, and Internet services</li> <li>• Why is communication different in the age of the Internet?</li> <li>• How can the Internet and Web tools be used to impact communications</li> <li>• How oral communication can be enhanced through the use of the appropriate technology tools</li> <li>• Writing Good news, Bad news, Persuasive, and Neutral messages and communicating the information</li> <li>• How can students use the Internet and Web tools for Communicating and Improving Productivity?</li> <li>• Perils and pitfalls of communication using the Internet</li> <li>• Netiquette</li> <li>• Developing visual messages in a digital environment: creation and interpretation of different types of visual messages (graphs, charts, diagrams, etc.)</li> </ul> <p>Students will read various discipline-related articles and Really Simple Syndication (RSS) Feeds, gather and organize information, develop a written report and a multi-media presentation that would include written words, graphs and charts.</p> <p>Students participate in class discussions related to the readings.</p> <p>Students will read various discipline-related topics, analyze the information, generate reports, and create multimedia slide presentations.</p> <p>Online quizzes on different web tools, adaptive learning exercises, class discussions, assignments, and oral presentations will be utilized. Students will be provided with good and bad writing examples to compare and critique.</p>
<p>Use research and analysis to develop written, oral and, where appropriate, visual messages which are appropriate for the discipline, intended audience, and mode of communication</p>	<p>Instruction and Related Readings:</p> <ul style="list-style-type: none"> <li>• Information Literacy: Using technology and the Internet                         <ul style="list-style-type: none"> <li>○ Selecting a topic, developing and brainstorming search terms to locate pertinent information</li> <li>○ Selecting and accessing databases and online resources appropriate for the task</li> <li>○ Analyzing information for relevance and validity</li> <li>○ Organizing, categorizing and synthesizing information</li> <li>○ Communicating information with others</li> </ul> </li> </ul> <p>Students utilize the Internet and online databases to research a topic related to research a technology-related topic, digital communication, or collaboration in the virtual world; gather and organize the information in a spreadsheet, and analyze the information; create a written report and a multi-media presentation which includes text, graphs, charts and sound. Students will develop polls and utilize other web tools via the Internet to supplement their findings.</p>

	<p>Students submit a written report of their research findings, along with a copy of the spreadsheet.</p> <p>Students submit presentation slides with multimedia content.</p> <p>Students make an oral presentation of their research findings.</p>
<p>Listen actively, evaluate, and critically analyze spoken discourse</p>	<p>Instruction and Related Readings:</p> <ul style="list-style-type: none"> <li>• Analyzing and interpreting oral messages in the age of the Internet:             <ul style="list-style-type: none"> <li>○ Identifying barriers to oral communication in the age of the Internet</li> <li>○ Utilizing active listening skills as a strategy to overcome communication barriers in the age of the Internet</li> <li>○ Identify cross cultural differences in communication techniques</li> </ul> </li> <li>• Oral presentations in the age of the Internet             <ul style="list-style-type: none"> <li>○ Describe technologies which enhance oral communication in the age of the Internet</li> <li>○ Utilize web tools for oral communication</li> </ul> </li> </ul> <p>Students utilize active listening techniques when participating in online oral (only) group communication activities, participate in class discussions, and follow instructions regarding individual and group communications.</p>
<p>Observe rules of plagiarism to use and cite resources appropriately</p>	<p>Instruction and Related Readings:</p> <p>Academic Honesty</p> <ul style="list-style-type: none"> <li>• Plagiarism</li> <li>• Using and documenting different citation style sources appropriately,</li> <li>• Internet and technology tools which support the appropriate citation of sources</li> <li>• Students will be introduced to techniques to safely communicate in a connected World with email, websites, social media, blogging, wikis, and more</li> <li>• Students will view the UHD Academic Policy information online within the UHD Library website and take a quiz on that information.</li> <li>• Students will be provided a short scenario which they must critique for academic honesty issues, plagiarism, and use of appropriate citation techniques.</li> </ul>
<p>Work effectively with others to support a shared purpose or goal</p>	<p>Instruction and Related Readings</p> <ul style="list-style-type: none"> <li>• Collaborating on the Internet: Tools and strategies which enhance relationships, communications, and collaboration             <ul style="list-style-type: none"> <li>○ Responsibilities of team members</li> <li>○ Fostering a constructive team climate</li> <li>○ Resolving team conflicts and handling difficult team situations</li> <li>○ Utilizing and executing tasks with technology which facilitates the organization and tracking of work.</li> <li>○ Time management – technology and tools for managing both group and individual work</li> <li>○ Utilization of web tools for virtual meetings</li> </ul> </li> </ul>

	<p>Students will use digital tools to collaborate on teams on a research topic and learn about the process of working in teams and ways to manage team conflicts. Each student will join a team; select, discuss, and develop the research topic; discuss the findings; and, teams will compare results.</p>
<p>Research and define academic and career goals within the discipline and develop learning strategies to support academic success and attainment of academic and career goals</p>	<p>Instruction and Related Reading</p> <ul style="list-style-type: none"> <li>• The value of effective communication in the age of the Internet in school and work</li> <li>• Tools and technologies that support academic success</li> <li>• Strategies for defining goals and tools and technology for planning and tracking progress</li> <li>• Internet and technology-based resources for researching academic and career goals and making career plans</li> <li>• University processes and policies             <ul style="list-style-type: none"> <li>○ How to best utilize Advising;</li> <li>○ Selecting classes and registration</li> <li>○ Interpreting the degree plan</li> <li>○ Declaring a major</li> <li>○ Using support services to excel at UHD</li> <li>○ Exploring opportunities when graduate school may be needed for their career goals</li> <li>○ Understanding information in Eservices</li> <li>○ Managing classwork using online productivity tools</li> </ul> </li> </ul> <p>Students choose a possible career path, research an entry-level position in that career and determine academic degree requirements for an entry-level position in that career area.</p> <p>Students utilize university processes, policies and support services and an understanding of how to effectively use support services to obtain information regarding selecting a degree program at UHD which will allow them to achieve their career goals.</p> <p>Develop a website that includes academic and career information.</p>