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A Framework for an Accounting Information Systems Curriculum

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Introduction

In some ways, accounting has not changed since Pacioli introduced the double-entry system over 500 years ago. In other ways, accounting has changed dramatically just within the past decade. With the explosion of the information revolution, the field of accounting has been swept up in the rush to adopt new technology and develop new systems to provide more and more information at a faster and faster pace. As a result, accountants are increasingly expected to not only have a strong grasp of accounting knowledge, but a firm understanding of the influence of information systems (IS), as well. This growth has placed demands on educational institutions to generate a new breed of college graduate—one that has the skills and training of both a traditional accountant and an information systems professional.

The purpose of this paper is to propose, for educators, a curriculum framework that brings together the fields of accounting and information systems in an attempt to better equip the graduates of both programs with a new collection of requisite skills. The curriculum framework is designed to be flexible so as to assist faculty in the selection of an appropriate offering for their particular school. The paper investigates three alternative AIS curriculum choices: an AIS Track, an AIS Minor, and/or an AIS Major.

A "cookbook" approach to curriculum design decisions is worthy of examination if it can help organize and simplify what is often a difficult curriculum planning decision. For this particular curriculum decision there are relatively few resources (for example, Brecht and Martin, 1996; Goul, et al., 1997; and Sharifi, et al., 1998) that faculty can draw upon. Thus, a major motivation for this paper is the lack of support information from which faculty can draw upon.

Objectives and Assumptions

In creating the AIS curriculum design, the first issue is identifying the objective of the new program. There are several possible objectives to consider. First, an AIS curriculum can benefit accounting students. Given the advances in technology and the increasing importance that recruiters are placing on Information Systems understanding and skills, it seems likely that a substantial number of accounting students would welcome the opportunity to focus their study in this area. Second, a well-crafted AIS curriculum can attract new students, particularly those who are interested in a more "techno-oriented" approach to accounting, who see the institution as offering a cutting-edge program that will produce highly marketable job applicants. Third, considering that continuing education is a requirement of all CPAs, retraining former students could increase enrollments while enhancing the reputation of the school

After the AIS curriculum goals have been identified, it will be necessary to tailor the decision to a particular institution's constraints. Understanding that a single curriculum framework may not be appropriate in every given situation, we make several assumptions. These assumptions cover the areas of current offerings in accounting and IS, faculty resources, computer resources, and software.

The first, and most important, assumption that is made in the development of the AIS Curriculum Framework is that a school currently has programs, or at least course offerings, in both Accounting and in Information Systems. Most business schools have well-established accounting programs at the undergraduate level. Many have also begun adding graduate course offerings due to the 150-hour rule in most states. A quick search on the World Wide Web helped identify over two hundred colleges and universities in the United States that also offer an IS program. Schools that do not offer a separate major in IS often provide a concentration through a management program, or perhaps even a business concentration in Computer Science. While our proposed framework draws on (assumed) existing courses, the creation of an AIS curriculum will generally require additional courses beyond those currently offered. The creation of more courses not only implies that additional faculty are needed to teach them, but it further suggests that some courses may require faculty qualifications that are not yet present.

The courses suggested as comprising the AIS curriculum tend to be relatively intensive in the use of computer technology. Additionally, the AIS courses may require software packages that go beyond the normal requirements of either Accounting or Information Systems offerings. Sufficient copies or licenses will be required to populate the labs, teaching classrooms or teaching labs, and faculty computers.

AIS Curriculum Options

We have chosen to concentrate on three options in the combining of the Accounting and Information Systems disciplines. Although certainly there are countless more variations, these three represent, by far, the most prevalent choices. The three options are: an AIS Track, an AIS Minor, and an AIS Major.

AIS Track

Slightly beyond the point where the two disciplines are completely autonomous is where we would offer the first option, the AIS Track. A Track implies a focus towards a particular area of study that can generally be fulfilled by taking, either as major electives or other business electives, relevant courses in that particular area. Within the group of required accounting courses, there should be an **Introductory AIS** course. An accounting major interested in an AIS Track would also take an **Advanced AIS** course, a **Systems Analysis and Design** course, and a **Database Concepts** course (each a 3 semester credit hour course). The Advanced AIS course would probably be a new course in the accounting curriculum, preferably taught by an individual with a strong accounting systems background. The remaining two courses would, most likely, already be offered through the IS program. They also provide the necessary understanding of the overall systems process and of the most prevalent methods of information storage and retrieval currently found in organizations today. An accounting major would take a total of 9 hours (beyond the Introductory AIS course) specific to the AIS Track that would generally fit within their allotment of elective hours. An Information Systems major would also have the option of completing an AIS Track by taking the introductory AIS course and the advanced AIS course, a total of 6 additional credit hours. Note, both Systems Analysis and Design and Database Concepts are assumed to be required courses in the IS major.

The AIS Track offering provides an attractive option for accounting programs with limited faculty resources, or for those that might prefer to ease towards the convergence of these two disciplines. Essentially all that is required is the introduction of one additional accounting course, provided that an introductory AIS course is currently part of their program.

AIS Minor

The next option we propose is the AIS Minor. The Minor represents a more concentrated focus on a specific area of study—in this case, Accounting Information Systems—than does a Track. Building on the four courses suggested in the Track option (Introductory AIS, Advanced AIS, Systems Analysis and Design, and Database Concepts), we propose 2 additional courses, each 3 semester credit hours, for a total of 18 hours required for the AIS Minor. One of these courses would reflect what has traditionally been called an "EDP Auditing" course. With the evolution of Information Systems having progressed far beyond traditional electronic data processing (EDP), this course would be more aptly referred to as "**Auditing Information Technology** (IT)." This course would be most appropriately taught by an accounting faculty, and should require the regular auditing course as a prerequisite or co-requisite.

The second course would represent a "capstone" course or **Seminar in AIS**. This course would be designed to pull together the, perhaps still seemingly disparate, disciplines. Depending on the strengths and background of various faculty members this course could be taught by either accounting or IS faculty. Thus, to complete an AIS Minor, accounting majors would be required to take 15 hours beyond their introductory AIS course; IS majors, also 15 hours (including the auditing prerequisite), again assuming that both Systems Analysis and Design and Database Concepts were required courses in their IS program.

AIS Major

Lastly, the third proposed option is the offering of a business degree with a Major in Accounting Information Systems. While able to stand alone as a recognized and successful field of study, the AIS Major could very appropriately be half of a double major, alongside strictly accounting or information systems, or perhaps any other business major, particularly general business. Upon completion of this program of study, the student would be strongly versed in not only traditional accounting aspects, but would also be much more able than the traditional accounting graduate to converse with both accountants and systems professionals in topics related to accounting systems design, development, implementation, and operation.

Continuing to build on the previous options, the AIS Major would include Introductory AIS, Advanced AIS, Systems Analysis & Design, Database Concepts, Auditing Information Technology, and the Seminar in AIS course plus three additional courses which will complete an in-depth course of study in the new Accounting Information Systems discipline.

To help strengthen the student's understanding of systems development, one of the three additional courses should be a **Structured Programming** course, such as COBOL. We suggest this particular course for a variety of reasons, not the least of which is that the vast majority of legacy systems as well as many new, mainframe-oriented systems, are written in COBOL. Furthermore, many, if not most IS programs require their majors to take at least one COBOL course as part of their program, and thus a new course would not be required. Additionally, the very nature of COBOL offers a good environment in which to learn structured programming techniques.

The second additional course required for the AIS Major should be focused on **Telecommunications and Networking**. Because much of the business world is intimately connected to the various members of their value chain, an understanding of the nature of this connection is necessary for the AIS professional. Again, this course is often already a part of the IS curriculum,

and thus does not represent a "new" course. Rather we are identifying another appropriate group of students for whom the course would be beneficial.

The third course should be designed as a **Survey of Intermediate Accounting**. Obviously, the AIS Major should have a firm understanding of the elements of financial accounting. While not going quite as in-depth as the typical 6 hours of Intermediate Accounting, this 3 hour survey course should be designed to provide a comprehensive, challenging overview of the various facets of financial accounting.

Summary and Conclusions

A total of nine courses were suggested in the previous section that should be considered as making up the AIS Curriculum. These courses are listed in Table 1, are cumulative, and are arranged by Track, Minor and Major.

This paper sets forth a framework to identify an appropriate AIS curriculum from three alternatives: a Track, Minor, and Major. Considering the pervasive influence of technology on the field of accounting, colleges and schools of business would do well to begin the process of combining these two disciplines in order to produce the types of graduates that are and will be highly sought after for many years to come.

Table 1. Proposed Courses for the AIS Curriculum

Track	Minor (includes track, plus)	Major (includes minor, plus)
Introduction to AIS	Auditing Information Technology	Structured Programming (COBOL)
Systems Analysis and Design	Seminar in AIS	Survey of Intermediate Accounting
Database Concepts		Telecommunications
Advanced AIS		

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