



AY 2007 – 2008
Program Review

Computer Information
Systems

A. Overview and brief history of the program including majors, minors and concentrations

The Bachelor of Science in Computer Information Systems at Mesa State College was approved by the Colorado Commission on Higher Education in January 2001 for an initial offering in Fall 2001. That was the outcome of a three-year effort to create a BS in CIS that built on the forty-year tradition of excellence in offering business-related computer courses and programs.

Presently, degree choices offered are the AA, BS, BAS and minor in Computer Information Systems. Only the BS is covered within this Self Study. However, all degree options draw from the same full set of courses that cover all the learning units in the widely-used IS 2002 model curriculum. They also use the same resources and are taught by the same faculty.

Highlights of the history of Mesa State's Computer Information System program include:

- 1960s – First data processing courses were offered, as well as a nine-month certificate in DP.
- 1972 – Associate of Applied Science in Business Computer Information Systems (CISB) was created.
- 1980 – Concentration in CISB was added to the Bachelor of Business Administration.
- 1996 – AAS in CIS changed to Associate of Arts in CIS to facilitate transfer students.
- 1998 – Minor in Business Computer Information Systems was created (first offered in 2000).
- 1998 – BS in CIS reported to Board of Trustees to be a top priority for the college.
- 1999 – CIS curriculum modified and mapped to IS 1997 model curriculum.
- 2000 – Campus approval of Bachelor of Science in Computer Information Systems.
- 2001 – State approval of Bachelor of Science in Computer Information Systems.
- 2002 – Bachelor of Science in Computer Information Systems offered for students entering in fall.
- 2003-2006 – Mapping CIS curriculum to IS 2002 model; several courses added, modified & deleted.
- 2003-2006 – Alignment of programs and procedures in preparation for ultimate accreditation by the Accrediting Board for Engineering and Technology (ABET).
- 2007 – Approval of Bachelor of Applied Science in Computer Information Systems, available in fall.

The BAS is a completer degree for those who hold an AAS in any CIS-related discipline.

- 2008 – Effective date of final (at least for a while) set of fine tuning of course and program changes to allow curriculum to stabilize as the program heads toward accreditation.

Given the CIS faculty's intention to pursue ABET accreditation in 2013 as part of the next five-year academic program review cycle, this Self Study is written with that focus and the external reviewer is asked to examine the CIS programs through that perspective.

B. Program goals and objectives and its relationship to role and mission of Mesa State College

The goals of the CIS program, as stated in the program application approved in 2001, are to:

- “Provide an avenue for baccalaureate education in computer information systems to meet the needs of business and industry on a local and regional level. This program will assist Mesa State College in its efforts to promote infusion of information system theory and practice in all programs to prepare students for the increasing demands for information technology skills from employers.
- Promote critical thinking and problem solving skills in the performance of systems analysis and design, programming and management. As an academic field, computer information systems encompasses two broad areas:
 1. Acquisition, deployment and management of information technology resources and services (the information systems function) and
 2. Development and evolution of technology infrastructures and systems of use in organization processes (systems development).
- Instill in the students professional values and ethics as well as principles of business management which are essential in the computer information systems profession.
- Prepare BS level computer information systems analysts for advancement into a masters degree program of advanced professional education (e.g., certification in various information technology specialties ...).
- Offer a strong undergraduate curriculum for the Department of Business (formerly School of Business and Professional Studies) thereby supporting the Master of Business Administration.
- Support the traditional emphasis that Mesa State College places on communication skills, the liberal arts, and interdisciplinary education at the undergraduate level.”

In Fall 2006, to align CIS goals with the specific goals of its home Business Department, the CIS faculty adopted the following mission statement that is also consistent with the above goals:

“The degree in computer information systems is designed to follow a national curriculum model for information systems. This enables the graduate to interface with academia and industry on a national level and to have exposure to the latest tools and methods of a modern day information systems program or functional unit. The student’s knowledge based upon completing the program will include: a broad business and real world perspective and an understanding of how information systems interact in these environments; strong analytical and creative thinking skills, ethical standards, interpersonal, written and oral communications and team building skills, and the ability to design and implement information systems solutions that enhance organizational performance. This knowledge base will equip the student with the skills necessary to function independently in an entry level position in information systems and have a strong foundation for continued learning and career growth.”

The above goals and mission statement are consistent with Mesa State College’s mission as stated at the bottom of the first column on page seven of the college’s *2006-2007 Catalog*. The short version, as appears on the standardized portion of the college’s assessment reports, is:

“The principal focus of our college’s curricular program is undergraduate education in the liberal arts and sciences and a limited number of professional, technical, and graduate programs.”

C. Analysis of Need for the Program, based upon:

i) Enrollment, graduation rates, and other relevant data

As one can conclude from the table below, the first year (2002-03) projections were reasonably accurate both for enrollments and for graduations. While the graduation rate has remained relatively stable, enrollments have declined. It might be argued that graduation rates will also decline over the next few years as a reflection of the decline in enrollments, due to the well-documented nationwide downturn in computer-related academic program enrollments. That is coupled with the extreme labor shortage in Mesa County, which encourages students to not enroll or to drop out of college in favor of inflated wages in the rapidly-expanding local energy industry. If one quarter of the students presently in the program (47) is seniors, then there should be a maximum of approximately 12 graduates in 2007-08.

	2002-03	2003-04	2004-05	2005-06	2006-07	Full Implementation
Projected Enrollments *	87	90	94	99	104	110
Actual Enrollments **	81	82	75	62	47	-
Projected Graduates *	20	22	24	26	28	30
Actual Graduates **	19	15	9	17	18	-

* Data drawn from "TABLE 1: ENROLLMENT PROJECTIONS" that was included in the application for approval of the BS in CIS and is available for examination in the CIS faculty's files.

** Data drawn from "Table1. CISB Degrees ..." and an unlabeled table. Both were provided by Mesa State's Institutional Research and are included in Appendix I.i.

A conclusion that can be drawn from the data in the above table is that the graduation rate of CIS majors is quite good. There were 81 students in the program in 2002-03. Including that year and the next three, there were 60 graduates. That translates to a 74% graduation rate. While some of the students in the program in 2002-03 might have taken a fifth year to graduate, the graduation count in 2002-2003 might have included some students who were carried over from earlier years. While those exact data are unknown, it is plausible to assume the 74% rate is reasonably accurate.

Moving the analysis forward by one year – of the 82 students enrolled in 2003-04, 59 graduated over that and the next three years. That still is a respectable 72% graduation rate.

The advent of the Bachelor of Applied Science in Computer Information Systems should positively impact those numbers. While that program does not officially come on-line until August 2007, there already are students taking classes who intend to earn that degree. Since each student in the BAS already holds an AAS, most of them can get through the remaining course work in two years.

The CIS faculty recognizes the need to increase enrollments in the CIS majors. That is one justification for creating the Bachelor of Applied Science in Computer Information Systems. Other measures will be discussed in Section G of this Self Study.

C. Analysis of Need for the Program (continued), based upon:

ii) Other considerations

Supporting the CIS degree options is one of the two major parts of the mission of the CIS programs. The other is providing support for the College's General Education program and for the Bachelor of Business Administration and the Bachelor of Science in Accounting degree programs. The Gen Ed program and the BBA include CISB 101 Business Information Technology. Students who are not prepared for CISB 101 might also have elected to enroll in CISB 100 Basic Computer Skills (since discontinued). Those are the only two freshman level CISB courses and are not required for CIS majors.

Accounting students and some students in the BBA also enroll in CISB 205 Advanced Business Software and CISB 305 Solving Problems Using Spreadsheets and Statistical Software. CIS majors also enroll in CISB 205 and 305, so those will not be considered as support courses in the ensuing discussion.

As shown in the following table*, courses enrolled by CIS majors accounted for half or less of the teaching load of the CIS faculty in 2006-07, a typical year. Half of the sections offered are ones in which CIS majors were not enrolled. Three out of five of the students taught by CIS faculty in 2006-07 were not CIS majors. Consequently, it can be seen that the CIS faculty play a very active role in support of the Mesa State's General Education program and other programs in the Business Department.

Course Level	Section Count	Section %	Head Count	Head Count %
000	0	0.0%	0	0.0%
100	22	50.0%	379	61.8%
000 & 100 Subtotals	22	50.0%	379	61.8%
200	7	15.9%	133	21.7%
300	5	11.4%	45	7.3%
400	10	22.7%	56	9.1%
500 (CISB 500 is on 2-3 yr rotation)	0	0.0%	0	0.0%
200-500 Subtotals	22	50.0%	234	38.2%
Totals	44	100.0%	613	100.0%

* Data in this table was drawn from Table 9 and an unlabeled table that appear in Appendix I.i and were provided by Mesa State's Institutional Research and are included in Appendix I.i.

It should be noted that the course required in the BBA program, specifically CISB 101, is being reviewed to determine whether it is the proper CISB course to be required of all business majors. CISB 101 can be characterized as a computer literacy course. The CIS faculty maintains that the proper course to be included in the BBA is CISB 210 Fundamentals of Information Systems, which parallels MANG 201 Principles of Management, MARK 231 Principles of Marketing, and others.

The challenge in changing courses lies in the interim period. The typical business student does not come to Mesa State thoroughly prepared in computer literacy. So, a strategy must be worked out for CISB 101 to be phased out while CISB 210 is phased in. Consequently, CISB sections and head counts in support of the BBA could dramatically increase for a brief transition period. Increased use of adjunct faculty might be required to teach CISB 101.

The data in the above table only reflect the courses with CISB prefixes. The CIS faculty also supports the Business Department in other ways. Dr. Snyder routinely teaches MANG 331 Quantitative Decision Making. In order to recognize the section and head counts that he generates, MANG 331 has been cross-listed as CISB 341 and MANG 341 effective in Fall 2007. Similarly, Dr. Carpenter has been assigned to teach a marketing course in each of the past three semesters (Fall 2006, Spring and Fall 2007).

D. Narrative Summary of Resources

i) Unique characteristics of the program influencing the need for resources

There are two unique characteristics that differentiate the Computer Information Systems program from most other programs on campus and from all other programs in the Business Department.

First, as noted in Section A, a goal of the CIS faculty from the beginning of the CIS program has been to earn and maintain accreditation from the Accrediting Board for Engineering and Technology (ABET). Additional resources are required to seek ABET accreditation. Funds must be available for faculty to attend ABET's conferences to learn more about the process, for the initial application, for review team's visitation, and for the periodic re-accreditation cycle.

In addition to monetary resources, ABET accreditation requires more assessment activities than required by Mesa State College in order to prove the quality of the program. There are some monetary costs associated with those. However, the primary additional resource is the time of the CIS faculty. Extensive faculty time and some additional budget are required to establish and maintain contact with alumni and with an advisory board and to maintain the records system to assess how well the program is meeting not only the objectives of the program but also the objectives of each course.

For the initial run to accreditation, the CIS faculty has committed that time and the Business Department Head has committed the budget. However, so far there has been no release time for faculty to sustain the additional workload and there has been no increase in the department's budget.

Second, Computer Information Systems is a hands-on discipline. In that regard it is more similar to Chemistry than to Management. In Chemistry programs, there are dedicated general laboratories, dedicated workspace for unique projects, specialized equipment, inventory of tools and replacement components, and a budget for replacing consumables. CIS programs have similar needs and those needs are not met by the same general purpose computers as are available in general computer classrooms.

General computer literacy courses, like CISB 101, can be taught in general computer classrooms, although those are already fully scheduled. Conversely, courses in the CIS degree programs need more specialized hardware, networks and software that is on or close to the leading edge of capabilities that is used in industry.

However, for much of the history of the CIS programs, (1) the floor space dedicated to CIS labs was too small, not close to CIS offices and not handicapped accessible, (2) CIS labs have used hand-me-down equipment from industry or from other campus departments, and CIS faculty have not been able to purchase the software and components it needed in order to do the proper job of educating students who are prepared to work in modern computing environments.

In the past few years, the department has fared better. In 2001, dedicated labs with adequate floor space were created in Houston 103 and 104. In 2002, course fees were added to most CISB courses (but not CISB 101, the generator of the majority of CISB headcount) that generated \$3000-\$4000 per year for replacement parts and a modest amount of software. In Summer 2005, the CIS program was able to buy a server to create a small local area network and Dream Weaver to support the new CISB 460 Electronic Commerce Systems course. However, as recently as summer 2006, most of the specialized CIS client computer stations still were replaced with five-year-old hand-me-down equipment.

D. Narrative Summary of Resources (continued)

ii) Unique characteristics of the program influencing the need for resources (continued)

It should be noted that within the Houston 103 specialized CIS lab, there exists a subset of one instructor and fifteen student computer stations that provide the same general purpose capability as in the general computer classrooms. Those are managed and maintained by campus Information Technology Services personnel. The hardware and software are on a replacement cycle that is part of the campus-wide plan. Those devices are connected to the campus network, so there is not deemed a need to allow the specialized CIS devices to be connected to the campus network. That subset has been an island of excellence within a sea of inferior systems. That subset is also been used on occasion to support other classes than CIS classes which takes Houston 103 offline as an open lab during those class times.

When the former Department of Accounting and CIS merged with the Department of Business in 2005, the potential for improvement of the CIS labs increased with the increase in departmental budget size. In summer 2006, the Business Department Head redirected funds sufficient to replace half of the chairs in Houston 103. More importantly, she allocated funds to purchase a Linux-based server that enabled creation of a local area network of a server and ten client stations for a realistic open source Java and web development environment using open source software such as Eclipse, Omondo, Apache, Tomcat, JBoss, MySQL and Open Office productivity tools. There were also funds to upgrade software and enable a second local area network of a server and ten client stations for a realistic VisualBasic and web development environment using proprietary software such as Microsoft's Windows 2003 Server, Visual Studio.Net, Visio and Project, as well as Macromedia Suite, Visual Analyst, and Oracle Express.

Unfortunately, there was not sufficient manpower to make all the above improvements operable. CIS faculty has traditionally provided management of the specialized lab and student work study money was used to hire a student five to ten hours per week. There were no qualified work study students forthcoming for a few consecutive semesters. So, whatever work was most desperately needed was handled by student volunteer labor.

In summer 2006, the Business Department Head authorized the CIS faculty to hire a full-time student worker. He spent the summer making the Java/web development LAN and the Visual Basic/web development LAN operational. He also wrote user manuals for system administrators, faculty, and students. Going into the Fall 2007 semester, the systems will be usable by CIS students in several classes.

Three other significant developments occurred in the 2006-07 academic year. First, the CIS program joined the Microsoft Academic Alliance. The student AITP chapter charges students for labor and supplies to make copies of software. This means the CIS lab computers will always have the latest versions of Microsoft products available. Second, the Student Government, campus administration, and Board of Trustees approved the CIS faculty's request to add fees to all the CISB courses that had been added without fees over the past few years, as well as CISB 101. That should triple the annual funds the CIS faculty have to improve the lab, beginning in 2007-08. Third, campus administration replaced half the chairs in Houston 103 and all the chairs in Houston 104 with ergonomically designed seating.

Houston 104 is an experimental lab. It houses six separate local area networks of a server and one or two clients each. The networks are configured for the projects at hand. The equipment in Houston 104 is also second hand and aged. However, for the purposes the equipment serves, that is acceptable. The course that uses Houston 104 most often is CISB 400 Data Communications and Network Management in which students configure LANs. A recent curriculum change, the addition of CISB 300 Information Systems Architecture, will change the usage pattern of the experimental lab. Students in that class will be more involved in experimentation with specific lab projects and assigned lab times.

D. Narrative Summary of Resources (continued)

iii) Unique characteristics of the program influencing the need for resources (continued)

In addition to the specialized CIS lab capabilities of Houston 104, there is also a need for extensive storage space. Inventories of software and replacement parts are kept in cupboards above the counters on which computer workstations sit. There is also an overflow storage area in a closet on the other side of Houston Hall.

In Fall 2008, the CIS program will move into a new classroom building along with the rest of the Business Department. The basic nature of the specialized labs in Houston 103 and 104 will be retained. There will be several significant changes which are detailed below.

- The servers that support the two local area networks in Houston 103 will be housed securely in a separate room in the CIS faculty office area. Some storage will be available in that room as well. The intention will be to keep the CIS programs software and documentation libraries there.
- Network connections from those two servers will be extended to CIS faculty offices. Presently, faculty does not have access in their offices to the Java and Visual Basic development networks.
- The replacement room for Houston 104 will have the same configuration as exists now in Houston 104 plus will contain several client stations connected to the two servers. In that way, CIS students will have access to the servers when the replacement room for Houston 103 is busy hosting a class.
- The replacement room for Houston 103 will have twenty-six workstations around the outside walls of the room. In the middle of the room, there will be tables configured in a U-shape. As a result, classes can be held in the room. As appropriate, students can face either the computers or the instructor.
- The workstations in the replacement for Houston 103 will have dual towers. One of the towers will be connected to the campus network and will have the same capability as the general campus computer classrooms. That tower will be managed and maintained by campus IT Services. The other tower will be a dual boot machine, allowing it to boot either as a client to the Java development environment or to the Visual Basic development environment. That tower will be managed and maintained by the CIS faculty and student lab assistants.
- As the new building was planned, it was determined that the CIS program did not have sufficient headcount at present to justify the square footage in Houston 103 as a lab primarily dedicated to CIS. Therefore, the replacement room for Houston 103 will be used as a computer classroom rather than a dedicated lab. Many of the upper division CISB courses will be taught in that new room along with other classes as well such as MARK 350 Marketing Research (which uses SPSS extensively) and MANG/CISB 441 Quantitative Decision Making (which uses Excel and specialized software). The room will be available as a CIS lab when classes are not in session. Consequently, the room that replaces Houston 104 will have several workstations as noted earlier.
- The CIS faculty has requested that the rooms in the new building that replace Houston 103 and 104 be equipped to serve as distance delivery rooms as well. As the new BAS in CIS comes online, it may be necessary to develop an alternative delivery plan for many CIS courses. The rationale is that all of the students in that program will hold an AAS and many of them will be employed and unable to attend traditional classes. The actual impact will be evaluated in the near future. Meanwhile, there has been no action on the request to configure those two rooms for remote delivery.

D. Narrative Summary of Resources (continued)

iv) Faculty and staff

Four full-time faculty members are assigned to the Computer Information Systems program:

- Gayla Jo Slauson, tenured Associate Professor, was hired in 1993 and holds the B.B.A. from Mesa State College and the M.B.A. from University of Southern Colorado. She has 17 years teaching experience.
- Donald A. Carpenter, tenure-track Associate Professor, was hired in 2003 and holds the B.S. from Kearney State College, the M.B.A. from the University of Colorado at Colorado Springs, and the Ph.D. in Business (major in MIS) from the University of Nebraska-Lincoln. He has 26 years teaching experience and 10 years industry experience.
- Johnny Snyder, tenure-track Associate Professor, was hired in 2005 and holds the B.A. from Ft. Lewis College, the M.A. and Ph.D. in Mathematics from University of New Mexico and the M.S. in Information Systems from Nova Southeastern University. He has 18 years teaching experience.
- MaryAnne Winniford, tenure-track Assistant Professor, was hired in 2006 and holds the B.A. from William Smith College and the Ph.D. in MIS from University of Arizona. She has 11 years teaching experience and 10 years industry experience.

The CIS program routinely uses three adjunct faculty members to teach lower division courses:

- Ron Lowe has taught on the main campus since 2004 and holds the BS from U of Illinois, the MBA from Santa Clara U, the MS from San Jose State U, and is ABD on the PhD from UCCS.
- Steven Metheny has taught on the Montrose campus since 1989 and holds the BSEE from New Mexico State University and the ME from University of Colorado.
- Michael Jensen has taught CISB 101 at Hotchkiss High School since 2006 and holds the BS and the MS from University of Wisconsin-Stout.

It is interesting to note that there have been only five other full-time CIS faculty through the years. All five left Mesa State College voluntarily, and four of those five left due to retirement. Such low faculty turnover is considered to be one positive sign of a quality program. It is also noteworthy that three of the five former full-time CIS faculty earned emeritus status--Mr. Pierre Bettelli in 1997, Dr. Denise McGinnis in 2005, and Dr. Chad Grabow in 2006--another positive sign of a quality program:

There is one other important point to make regarding the full-time CIS faculty, specifically that they meet the ABET criteria for accreditation:

- Their “interests, qualifications, and scholarly contributions ... are sufficient to teach the courses, plan and modify the courses and curriculum, and to remain abreast of current developments in information systems.”
- They “have a level of competence that would normally be obtained through graduate work in information systems.”
- “A majority of the faculty members,” three out of four, “hold terminal degrees.” Two “have a Ph.D. in information systems or a closely related area.”
- They “remain current in the discipline.”

D. Narrative Summary of Resources (continued)

v) Physical facilities

This section will describe the current physical resources as well as the physical resources that will be available when the CIS Program along with the entire Business Department relocates in Fall 2008 to the new classroom building that is presently under construction.

The four full-time CIS faculty each has an adequate private office space in Houston Hall 105-106. The adjunct CIS faculty shares an office with other adjuncts. A semi-private outer office area is used by the CIS faculty for daily meetings over lunch and coffee breaks. A conference room is available in Houston Hall for larger meetings. A common photocopy/mail/fax/supply room in Houston Hall 100 is shared by all Business Department faculty.

All of these facilities will have equivalents in the new classroom building.

All classrooms in Houston Hall are shared by multiple academic disciplines and scheduled centrally by campus administration. Consequently, there are no dedicated classrooms for CIS. When each semester's schedule is created, the department head can specify the classroom requirements for a particular class. Since most classrooms are "smart" (i.e., equipped with networked computer and projector), most of the time this process works well for CIS classes. Given that most upper division CIS classes have low enrollments, often the assigned classroom is larger than needed. Occasionally, especially during prime class times, a CIS class must be taught in a classroom building other than Houston Hall.

That scenario is expected to continue in the new classroom building.

The exception to the above scenario pertains to CISB 101 Business Information Technology, the required computer literacy class in the BBA program. (See Section C.ii for more information regarding CISB 101.) In Houston Hall, there is one adequate computer classroom, specifically Houston 102 which has thirty-two student computer stations. CISB classes are presently capped at twenty-four students although the classes occasionally are slightly larger. There are similar computer classrooms in Medesy Hall and Wubben Hall. (Computer labs, rather than classrooms, exist elsewhere, such as in the Library.)

The campus-wide demand for computer classrooms is quite high. Consequently, there are not sufficient time slots in the semester schedule for all CISB 101 classes to meet all the time in a computer classroom. Therefore, most CISB 101 sections are "paired" – two CISB classes are offered in the same time slot, one scheduled for a computer classroom, the other scheduled for a regular classroom. The two sections swap rooms one or two days per week so that each section gets an equal number of days in the computer classroom. Obviously, this is not an ideal situation. Students become quite restless and detached during their classroom sessions when they cannot immediately practice the new features the instructor is demonstrating.

In the new classroom buildings, there will be two additional general computer classrooms similar to Houston 102. This will allow each section of CISB 101 to be scheduled in a computer classroom for all class sessions. Each computer classroom will have only twenty-four student stations so CISB101 sections cannot be over-enrolled. There will also be no slack computers in case one that a student is using malfunctions. However, the situation will be much better than presently exists.

A couple of distance delivery facilities exist in the Library building. The new classroom building will add more distance delivery facilities.

D. Narrative Summary of Resources (continued)

vi) Instructional equipment, including information technology and its use

Section D.iii discussed the information technology used in specialized CIS labs. Section D.v noted that all classrooms used for CIS courses are smart classrooms and explained the computer classrooms in which certain CIS classes are taught. The only remaining points to be covered relate to computers in CIS faculty offices.

Faculty office computers at Mesa State College are provided from department budgets. They are ordered per specifications set by campus IT Services and little variance is possible. The campus policy is to use Microsoft's operating system and productivity tools, but to stay behind the bleeding edge. Consequently, the computers in CIS faculty offices are similar to those in most faculty offices. One significant consideration is that the Business Department Head has made the commitment that the CIS faculty be "power users," meaning that the CIS faculty get replacement computers more often than many other faculty with the older CIS machines being reallocated among the department faculty. Another significant future consideration was noted in Section D.iii, specifically that the CIS faculty offices in the new classroom building are intended to be wired so that faculty can connect to the two local area networks available to students in the specialized CIS labs.

vii) Library including DVD, video, etc.

The Library staff has evaluated the holdings and resources related to CIS. That report is contained in Appendix I.iii. It indicates that the library resources are adequate. It appears that no additional funding is needed at this time, but notes that present funding levels must continue.

The CIS faculty greatly appreciates the Library staff's efforts and concurs with the Library staff's opinions. Due to the rapid growth of literature on CIS-related topics, the use of on-line resources is critical. As the Library's report states: "Electronic access seems to be quite good."

viii) Unique resources of revenue and expenditures

The CIS program is funded out of the Business Department's budget. The only funds over which the CIS faculty has direct spending authority are the fees generated by CISB courses. Those funds are used explicitly for the dedicated CIS labs. As noted in Section D.i, those fees went into effect in 2002 and have amounted to \$3000-\$4000 per year. That amount covered only the most urgent repairs and minor purchases of software.

As also noted in Section D.i, in Spring 2006, permission was received to add fees to most CISB courses including CISB 101 which generates the majority of the headcount in the CIS program. Consequently, it is anticipated that the annual amount generated by CIS course fees will triple. Unfortunately, the Fall 2007 class schedule was already printed when approval was received. Hence, the full impact of the increase in course fees will not be felt until 2008-09. At that time, the CIS faculty will set in place a plan that should allow a five-year replacement cycle for the equipment in the specialized CIS labs, although the preference is to be on a three-year cycle. A preliminary version of that plan is included in Appendix I.vii. It is important to note that this five-year cycle differs from the present five-year cycle in that the replacement equipment will be new rather than hand-me downs.

E. Effectiveness

i) Accreditations by professional, regional or national associations

Mesa State College and its academic programs are accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools.

As noted in a previous section, it is the intention of the CIS faculty to earn and maintain accreditation by the Accrediting Board for Engineering and Technology (ABET). The intention is to apply for that accreditation in January 2012, with the external review team's visitation in Fall 2012. That would coincide with the next scheduled review of the CIS programs in Mesa State College's five-year academic program review cycle.

Toward that end, the CIS faculty, to the best of its knowledge, has put into place all the elements expected of an ABET-accredited program. Since ABET accreditation has been a long-term goal, some of those elements have been in place for years. Other elements have only recently been put in place. The five years between this present 2007 review and the 2012 review will provide ample experience and opportunity to refine all those elements and establish any new ones should ABET requirements change.

ABET's 2007-08 evaluation criteria have been copied into appendix (I.vii) to serve as a checklist to illustrate Mesa State's CIS Program's readiness level. Brief responses by the CIS faculty are included. The CIS faculty requests the external reviewer to comment in detail on that perceived readiness level in addition to providing comments required of the external reviewer by Mesa State administration.

Mesa State's administration is on board with the pursuit of ABET accreditation for the BS in CIS. Questions asked by others are: "Why does the CIS faculty want to pursue accreditation?" and "Why does the CIS faculty want to take on so much additional work?"

The answer revolves around quality. While the CIS faculty knows it offers a quality program, there is always room for improvement. The process of pursuing and retaining accreditation will disclose those aspects.

There is value in receiving the endorsement from other experts in the field. That adds credibility to the CIS faculty's claim of quality. That is important from many perspectives, such as requesting more resources, recruiting future faculty, soliciting internships for students and employment for graduates, and—perhaps most importantly in a time of declining enrollments in information systems programs--recruiting new students into Mesa State's CIS program.

ii) Changes since most recent program review

This is the first program review of Mesa State College's CIS program. Prior to creation of the BS in CIS, CISB was included as a concentration in the BBA program. 1996-97 was the last time a program review of the BBA program was conducted when it included the CISB concentration. That review did not address the concentration areas individually. The review document is available on request, but not included herein.

E. Effectiveness (continued)

iii) Assessment of student academic achievements within the program, based on the program assessment plan, including summary of strengths and needs identified as a result of these assessments for the years covered by this review

Program assessment at Mesa State College is a formalized process of submitting an assessment plan for each academic year and an assessment report after each academic year. College requirements specify each program will have a minimum of three program objectives to assess and a minimum of two measurements for each objective.

Appendix I.v contains all the assessment reports since the inception of the CIS program, specifically for 2002-03, 2003-04, 2004-05, 2005-06 and 2006-07. The assessment plan is a subset of the assessment report, so the planning documents are not included except for the plan for 2007-08.

The CIS program assessment has evolved over the period of this program review. The plan for 2007-08 is highly likely to be the standard for the next five years as the CIS faculty is now satisfied that they have a solid program assessment system in place. The remainder of this narrative will address CIS program assessment from that perspective.

The assessment plan now centers on four objectives that grow out of the mission statement that the CIS faculty adopted in Fall 2006. Concisely stated, those are that graduates will demonstrate:

1. mastery in systems theory and concepts, information technology tools, systems analysis, design and development methodologies, and problem solving as applied to computer hardware, software, and networks appropriate for the bachelors level;
2. knowledge in business functions (such as accounting, business law, finance, management, marketing, economics, and quantitative methods) as applied locally, nationally and globally, appropriate for the bachelors level;
3. proficiency at general and technical writing and oral communications skills appropriate for the bachelors level; and
4. proficiency at critical thinking and analytical skills appropriate for the bachelor's level.

Since the CIS program includes a capstone course, CISB 471 Advanced Information Systems, a majority of the assessment measurements are accomplished during that course. Those include use of the ICCP Core Exam (which addresses the IS2002 model curriculum learning units, all of which are included in the courses in the BS and BAS in CIS) to measure objective 1, the Business Major Field Test (MFT) to measure objective 2, the Quantitative portion of the MFT to measure objective 4, a comprehensive team project and presentation in CISB 471 to measure objectives 1 and 2, an exit survey to measure objectives 1, 2, 3 and 4.

In all years, student outcomes on all measurements have exceeded the expectations the CIS faculty set for its program assessment. All four program objectives are routinely met as measured by student performance. There will be more in Section E.v regarding the specifics of the outcomes of those measurements.

One measurement that was mentioned in earlier assessment plans was a survey of alumni. Since there was no campus tracking mechanism for alumni, that measurement was never applied. In Spring 2007, the CIS faculty began the important phase of surveying 280+ alumni from the BBA in CISB, and AAS, AA and BS in CIS. The survey was included in the first annual CIS newsletter. From 2007-08 forward, feedback from this very important constituency will be included in the annual CIS assessment plan and report.

E. Effectiveness (continued)

iii) Assessment of student academic achievements within the program, based on the program assessment plan, including summary of strengths and needs identified as a result of these assessments for the years covered by this review (continued)

Whereas the ICCP Core Exam addresses the knowledge portion of objective 1, there is the question as to whether the tools portion is being addressed properly in the CIS curriculum. To measure the program's effectiveness in that regard, the CIS faculty established an industry advisory board in Spring 2007. That feedback will also be included in the CIS assessment plan and will be reported from 2007-08 into the future.

In summary, the formal CIS program assessment process has identified strengths more so than needs. The faculty expects that the pending feedback from alumni and the industry advisory board might help identify needs.

In preparation to apply for ABET accreditation, the CIS faculty has realized additional important assessment is necessary to insure program quality. What has been missing from the assessment process is assessment of course objectives rather in addition to program objectives. In Spring 2007, the faculty launched procedures to correct that deficiency.

There is now a notebook for each CISB course. The lead faculty member for that course will keep the notebooks updated. Each notebook will include:

- the official course syllabus, including detailed course objectives which have been mapped to the learning units from the IS2002 model curriculum,
- other materials given to students,
- copies of evaluation instruments used in the course,
- copies of student work,
- a listing of grade distributions,
- an evaluation as to how well the course meets its learning objectives, including evidence from the learning unit analysis provided after the ICCP Core Exam, and
- comments from the instructor as to how the course will be improved before taught again.

This process will require a great deal of additional work by the CIS faculty but will augment the program assessment plan and provide the type of feedback required for ABET accreditation.

Since the course objective assessment process was begun in Spring 2007, the external reviewer will see a work in progress. All the course notebooks will be available for review. Spring courses will not have all materials included as the process was begun in the middle of spring semester. Fall course will not have all material included as the external reviewer's visitation will occur in the middle of the fall semester. Nonetheless, the CIS faculty will greatly appreciate the external reviewer's opinion as to whether it is on the proper track with this course objective assessment procedure.

E. Effectiveness (continued)

iv. Faculty success data: (1) teaching; (2) advising; (3) scholarship; (4) service; (5) other achievements

(1) Teaching effectiveness.

The full-time Computer Information Systems faculty members teach 24 credit hours each academic year at a minimum. This equates to four three credit hour course per semester. Sincere attempts are made to require only three distinct preparations per semester per person. Exceptions to this workload occur occasionally, but with reimbursement. As examples, summer and overload classes are paid in addition to the contracted salary, and faculty receive release time for the first new preparation of a graduate level class. Nearly all courses in the major are covered by full-time faculty. Occasionally, a lower division class will be taught by an adjunct faculty.

All the CIS faculty are evaluated by students in every class every semester, although that is not required of the one tenured faculty member. CIS faculty routinely receives median scores in the range 4.0 to 5.0 on a five point scale. Most course medians are 4.5 or higher. Peer evaluations are likewise high.

(2) Advising effectiveness.

CIS majors are divided among full-time CIS faculty, who send email each semester to entice students to visit them prior to registering for classes. Very few CIS majors have problems completing their program in the time they desire. This points to the effectiveness of the CIS faculty as advisors. However, due to existence of the pre-CIS designation and that most CIS classes are upper division; the faculty often does not meet their majors until they are sophomores. Consequently, the CIS faculty has requested that pre-registration advising be made mandatory for all CIS majors each semester. The Department Head has agreed and passed that request to higher levels. The CIS faculty all participate in campus-wide advising of incoming freshmen in an attempt to reach those students as well.

(3) Scholarship effectiveness.

The CIS faculty actively publishes and presents at scholarly conferences. Their individual scholarship records for 2002-2007 are summarized in the following table.

	Refereed Journal Articles & Chapters	Peer Reviewed Conference Papers	Non-refereed Publications	Presentations
Prof. Slauson	2	11	0	7
Dr. Carpenter	7	29	5	20
Dr. Snyder	1	9	0	7
Dr. Winniford	0	3	1	2
Totals	10	52	6	36

Collectively, they have five outstanding paper awards. They also bring students into their scholarship and encourage student participation in their own scholarship. Collectively, their students have published nine conference papers; have earned two outstanding conference paper awards and five national paper awards.

(4) Service effectiveness.

The CIS faculty has served on dozens of campus-wide and departmental committees and engages in many community service activities as documented in their vitae. Of particular note is that Professor Slauson served as Faculty Trustee and earned MSC's outstanding achievement in service award in 2001.

E. Effectiveness (continued)

- v. **Student success data; e.g., awards, licensure rates, national testing for licensure rates, average test scores on graduate school admissions tests such as GRE, MCAT, LSAT, acceptance into graduate or professional programs, employment in the field, etc.**

Section E.iii noted that the CIS program assessment plan includes use of the business Major Field Test (MFT) and the ICCP Core Exam. Mesa State’s CIS majors have excelled on those exams each year as illustrated in the following table, as reported in the CIS annual assessment reports.

	Major Field Test	MFT, Quantitative	ICCP Core Exam	
	MSC CIS Percentile	MSC CIS Percentile	National Mean	MSC CIS Mean
2002-03	71	Not reported	51.83	65.96
2003-04	Not reported	Not reported	47.6	48.7
2004-05	66	65	53.43	60.12
2005-06	80	90	51.2	63.33
2006-07	70	75	54.8	57.2

Another measure of CIS student success is their performance in the competitions at the National Computer Conference sponsored by the Association for Information Technology Professional (AITP). Mesa State has an active student chapter of AITP, sponsored by the Mile High AITP chapter in Denver. Mesa State CIS students who have placed in those national competitions are:

Jeff Williams and Ian Maki	3 rd Place	1998 Webmaster Competition
Ken Comstock	3 rd Place	2003 Undergraduate Paper Competition
Juliana Munoz	2 nd Place	2004 Undergraduate Paper Competition
Thomas Wolf	1 st Place	2006 Undergraduate Paper Competition
Jarod Harper and Bill Jackson	1 st Place	2007 Web Competition
Telicia Chaffin	3 rd Place	2007 Undergraduate Paper Competition
Chuck Smith	Top 10 finalist	2007 Undergraduate Paper Competition
Mesa State College Team	1 st Place	2007 Banner Competition (Creativity)

Several CIS students have participated in the annual Student Scholars Symposium. Six students have published papers and presented at the Mountain Plains Management Conference, with Katrina McLeod winning outstanding student paper award in 2004.

AITP student chapter members make a concerted effort to raise funds so as many as possible can attend the NCC. They have developed two unique methods to raise funds.

- First, they have created a Computer Heroes Program, which offers personal computer repair, web site development, and similar services to the student body and general public for small donations. Computer Heroes have a walk-in session each month during the school year. They also will perform work by appointments. They have expanded their services to include web site and other systems analysis, design and construction work.
- Second, one member of the student AITP chapter is the designated “staff member” in the contract between Mesa State College’s Business Department and Microsoft Corporation’s Academic Alliance program. That student, with assistance from other AITP members, makes copies of selected Microsoft products for those students in CISB classes that qualify for the cost of materials and labor.

As of this writing, the CIS faculty has not formally tracked placement of its graduates. One of the outcomes of the alumni survey initiated in summer 2007 will be to establish that database.

F. Strengths Identified by the Program Review

The most noteworthy strength of Mesa State College's Computer Information Systems program is its faculty. The full-time and part-time members of the faculty are:

- Well versed in the primary sub-disciplines within computer information systems,
- Properly educated in CIS and supporting disciplines, e.g., business, computer science, mathematics,
- Highly experienced both in terms of college teaching and industry knowledge,
- Dedicated to the success of their students in their courses and in their careers,
- Extremely motivated to create and maintain the highest possible quality in the CIS program,
- Accomplished scholars, advisors, and creators of curriculum, policies and procedures, and
- A cohesive, self-coordinated, mutually-supportive team.

A second important strength is Mesa State's CIS students. With few exceptions, they are hard-working and eager to learn. They appreciate the challenging assignments in their classes and rise to the occasion. Arguably, as a group, the CIS students are above average for Mesa State students. As noted previously, CIS students perform above national averages on the MFT in Business, the Quantitative area of the MFT, and the ICCP core exam.

A third strength of the CIS program is the support it receives from the Business Department Head and staff. Dr. Bridge and Ms. Sandoval are always willing to do what they can to assist. Dr. Bridge appreciates the CIS faculty's efforts to set a high standard for quality. In the past year especially, she has redirected significant funds to improvement of the CIS dedicated labs.

A fourth strength is the CIS curriculum, which is based on the IS2002 model. It has been modified considerably over the past five years, but will stabilize after the last planned round of changes made in September 2007, which go into effect in Fall 2008.

Potential strengths for the future are:

- Dedicated CIS labs, due to:
 - Recently installed capabilities that will, beginning Fall 2007, be incrementally implemented in class work,
 - A regular replacement cycle that will be possible with expanded CISB lab fees,
 - A lab assistant to maintain operations providing funding continues, and
 - The new hardware and layout in the new classroom building.

Improvements should be seen immediately, but perhaps not measurable until a cohort of students, who have had four years experience with the recently-improved lab, take the exit exam in 2011.

- Expanded assessment plan, including:
 - Annual assessment that will now be routine and demonstrate how well the program meets course objectives, and
 - Annual feedback from alumni and Advisory Board that has been recently implemented that now provides regular program input.

Both of those will be included in the 2007-08 CIS assessment plan; however, the effect might not be measurable until there is more history with the ICCP exit exam.

G. Areas Needing Strengthening Identified by the Review

Mesa State College's Computer Information Systems program shares the same huge challenge with all computing-related programs, namely student enrollments that are lower than preferred. The number of students in MSC's CIS programs could easily double or perhaps even triple without putting undo strain on the infrastructure, with four exceptions:

- There would need to be additional sections of several courses in the major,
- Additional sections of courses in the major would require additional instructors, probably adjuncts at first, to teach the lower-division courses not in the major,
- More sections in the major would be taught in the new classroom building's equivalent to Houston 103 meaning less time available for use as an open lab, and
- More sections in the labs and more CIS majors means greater strain placed on lab equipment, which necessitates a shorter replacement cycle which, hopefully, can be funded by course fees paid by the increased number of students.

Appendix I.vii contains a list of recruiting activities in which the CIS faculty engages to address this problem student of lower-than-desired enrollments in CIS.

Additional funding is needed. While the recently increased CISB course fees are envisioned to cover needs of specialized CIS labs, there is a need to increase the Department of Business' budget to cover costs of current computers and software for CIS faculty, training needed to learn constantly evolving software and the new quality-centered activities the CIS faculty have recently activated, e.g.: additional Advisory Board meetings, alumni annual newsletter and surveys, ABET accreditation, and expanded assessment activities to include course objective assessment.

Moreover, Mesa State College's travel budget is inadequate, especially to support a rapidly changing discipline such as Computer Information Systems. The College allocates \$600 per faculty per year for travel. That only covers the regional conferences in which CIS faculty routinely publishes and presents, such as Mountain Plains Management Association or Western Decision Sciences Institute. The budget certainly does not cover the expenses to attend the major annual CIS curriculum-related conferences that the CIS should also attend: Information Systems Education Conference (ISECON) in which details related to the ICCP Exam are discussed, the National Collegiate Conference which the AITP faculty sponsor must attend to chaperone MSC students, and ABET's annual conference on assessment. There are no funds to attend the major IS-related conferences such as International Association of Computer Information Systems (IACIS), International Conference on Information Systems (ICIS), or the Association for Computer Machinery (ACM) Computer Conference. Furthermore, there are no funds for training faculty on software products they teach to students in the classroom.

Another aspect that needs to be addressed is the time required of the faculty to handle all the aspects of the of the CIS program that are not apparent in many other departments or programs. In addition to the activities mentioned above, there is also the oversight of the specialized CIS labs and the supervision of internships and other independent learning experiences that are required of students in the most recent round of changes to the BS in CIS effective Fall 2008.

One other area that also needs to be strengthened is the routine management of the dedicated CIS labs. The labs are managed using student labor. Presently, there is an outstanding student in that position. However, the availability of outstanding students has varied in the past. Most of those who could have filled that position extremely well are already on-the-job earning a higher wage than MSC can pay. Consequently, the labs have been managed on occasion by volunteer labor. A plan needs to be worked out to provide more consistency regarding this critical resource.

H. Vision

i) Proposals for strengthening the program

The CIS faculty knows it has a very solid, high quality program in place. As noted in Section F on strengths of the program, many of the aspects of the CIS program that have most recently been put in place simply need time and dedicated faculty attention to mature.

As noted in Section G on aspects of the program that need to be strengthened, most of those require increased funding in the Business Department's budget so that there are monies dedicated to continuity of important CIS initiatives.

The most important new means to strengthen the CIS program is through recruitment of new students into the program and continuing to retain students. This is a multifaceted task that the CIS faculty would like to undertake beginning in 2007-08. Aspects of this proposal include:

- Reaching out to those at Mesa State College who are on the front line of contacting prospective students (e.g., recruiters, admitters and advisors) to make sure those people understand the nature of the CIS disciplines and quality of the CIS program,
- Developing a campaign that features CIS as an attractive discipline for study,
- Getting into the middle schools and high schools to establish direct contact with students as well as influential teachers and guidance counselors, and
- Visiting community colleges and vocational schools to meet with students and teachers.

The CIS faculty would also like to establish more internships for students and employment opportunities for graduates. Some of this work can be done through the CIS Advisory Board. However, many CIS students find employment on the front range and the faculty would like to explore expanding into this area as well.

There is another initiative will ultimately strengthen the CIS program be creating more awareness of CIS. On August 15, 2008, the Business Department Faculty approved the concept of changing the required CIS course in the BBA from CISB 101 to CISB 210. The change will not take effect until Fall 2009, but will require CIS faculty time and attention before that. A position paper, which is included in the Appendix vii gives the justification for the change and options for accomplishing the change. The business faculty chose the third option which requires creating a test out procedure. The long-term result of the change will be an increased general awareness of the nature of CIS, which can enhance recruiting majors into the CIS program.

ii) Program priorities requiring additional resources

As noted in Sections G and H.i, there are many program priorities that require more guaranteed ongoing funding. Those will not be repeated in this section.

The proposals discussed in the above section H.i for recruitment of new students and outreach to employers, require time and travel money. Given the broad range of activities in which the CIS faculty presently engages, the time envelop has already been pushed. A rotating release time plan would be one way to free up time to handle the recruiting aspects. Summer stipends might be another consideration.

Appendix A

Program Data

10/10/2020

10/10/2020

Table 1. CISB Degrees Awarded by Major Code, Academic Years 2002 - 2006
Mesa State College

Level	Major Code	Program Name	Degree Attainment							
			2002	2003	2004	2005	2006			
Baccalaureate										
BBA	3123	Business Computer Information Systems	7	3	1	3	0			
BS	3165	Computer Information Systems	12	12	8	14	18			
TOTAL			19	15	9	17	18			

Table 1A.3. Undergraduate CISB Enrollment by Major Code, Summer Terms 2002 - 2006
Mesa State College

Level	Major Code	Program Name	2002	2003	2004	2005	2006
Baccalaureate	3123	Business Computer Info System	0	0	0	0	0
		New Majors	9	4	1	0	0
		Continuing Majors	9	4	1	0	0
		Sub-Total					
	3165	Computer Information Systems	0	0	0	0	0
		New Majors	2	2	5	8	4
	Continuing Majors	2	2	5	8	4	
	Sub-Total						
3193	Pre-Computer Info Systems	0	0	2	0	1	
	New Majors	10	8	7	6	1	
	Continuing Majors	10	8	9	6	2	
	Sub-Total						
	All CISB						
	New Majors	0	0	2	0	1	
	Continuing Majors	21	14	13	14	5	
	Grand Total	21	14	15	14	6	

Table 1A.3. Undergraduate CISB Enrollment by Major Code, Fall Terms 2002 - 2006
Mesa State College

Level	Major Code	Program Name	2002	2003	2004	2005	2006
Baccalaureate	3123	Business Computer Info System	0	0	0	0	0
		New Majors	19	10	3	2	1
	Sub-Total	Continuing Majors	19	10	3	2	1
	3165	Computer Information Systems	0	0	2	1	2
		New Majors	14	13	28	26	14
	Sub-Total	Continuing Majors	14	13	30	27	16
	3193	Pre-Computer Info Systems	14	15	13	6	3
		New Majors	33	32	19	16	9
	Sub-Total	Continuing Majors	47	47	32	22	12
All CISB		New Majors	14	15	15	7	5
		Continuing Majors	66	55	50	44	24
	Grand Total		80	70	65	51	29

Table 1A.3. Undergraduate CISB Enrollment by Major Code, Spring Terms 2003 - 2007
Mesa State College

Level	Major Code	Program Name	2003	2004	2005	2006	2007
Baccalaureate	3123	Business Computer Info System	0	0	0	0	0
		New Majors	17	8	2	1	1
	Sub-Total	Continuing Majors	17	8	2	1	1
	3165	Computer Information Systems	0	0	2	0	1
		New Majors	17	21	29	25	16
	Sub-Total	Continuing Majors	17	21	31	25	17
	3193	Pre-Computer Info Systems	3	3	4	1	8
		New Majors	38	31	23	19	11
	Sub-Total	Continuing Majors	41	34	27	20	19
Grand Total	All CISB	New Majors	3	3	6	1	9
		Continuing Majors	72	60	54	45	28
			75	63	60	46	37

Table 2. HEADCOUNT AND CREDIT HOUR DISTRIBUTION BY COURSE LEVEL BY TERM AY 2007

Level/Course Level	Summer Headcount	Summer Credit Hours	Fall Headcount	Fall Credit Hours
Undergraduate				
Remedial - 000	0	0.0	0	0
Lower - 100	14	42.0	207	609
Lower - 200	0	0.0	63	189
Upper - 300	0	0.0	31	96
Upper - 400	1	3.0	21	63
Subtotal Undergraduates	15	45.0	322	957
	100.0%	100.0%	100.0%	100.0%
Graduate				
Graduate - 500	0	0.0	0	0
Subtotal Graduates	0	0.0	0	0
Total	15	45.0	322	957
	100.0%	100.0%	100.0%	100.0%
Level/Course Level	Spring Headcount	Spring Credit Hours	Total Credit Hours	
Undergraduate				
Remedial - 000	0	0.0	0	0.0
Lower - 100	205	607.0	1,258	64.0
Lower - 200	71	213.0	402	20.4
Upper - 300	14	42.0	138	7.0
Upper - 400	35	103.0	169	8.6
Subtotal Undergraduates	325	965.0	1,967	100.0%
	100.0%	100.0%	100.0%	
Graduate				
Graduate - 500	0	0.0	0	0.0
Subtotal Graduates	0	0.0	0	0.0%
Total	325	965.0	1,967	100.0%
	100.0%	100.0%	100.0%	

Table 3. HEADCOUNT AND FULL-TIME EQUIVALENT CISB ENROLLMENTS AY 2007

Level/Tuition Classification	Headcount	Credit Hours	FTE
Undergraduate			
In-State	598 90.5%	1,775 90.4%	59.2 90.4%
Out-of State	63 9.5%	189 9.6%	6.3 9.6%
Subtotal	661 100.0%	1,964 100.0%	65.5 100.0%
Graduate			
In-State	1 100.0%	3 100.0%	0.1 100.0%
Out-of State	0 0.0%	0 0.0%	0.0 0.0%
Subtotal	1 100.0%	3 100.0%	0.1 100.0%

Table 5A. ONE-YEAR RETENTION RATE FOR FIRST-TIME CISB 2001 - 2005
Mesa State College

Level	Major Code	Program Name	Retained or Graduated Subsequent Fall # %	Not Retained Subsequent Fall # %	Total # %
Baccalaureate					
	3123	Business Computer Information Systems	0 0.0%	3 100.0%	3 0.0%
	3165	Computer Information Systems	- -	- -	- -
	3193	Pre-Computer Info Systems	7 35.0%	13 65.0%	20 100.0%
TOTAL			7 30.4%	16 69.6%	23 100.0%

Table 5B. Headcount and Average Cumulative Credit Hours to Degree for CISB Majors Graduating AY 2002 - 2006

Type of Entry into MSC	Headcount	Average Cumulative Credit Hours to Degree
Baccalaureate		
Student Type		
Began at MSC	44 55.7%	141.0
Transferred in to MSC	35 44.3%	142.4
Total	79 100.0%	151.6
Subtotal		

Table 6. CISB Faculty by Tenure Status, 2005-2007
Mesa State College

Status	2004-2005		2005-2006		2006-2007	
	FTE	%	FTE	%	FTE	%
Tenure	4.0	83.3%	3.0	61.2%	2.0	44.4%
Tenure-Track	0.0	0.0%	0.0	0.0%	2.0	44.4%
Total Tenure	4.0	83.3%	3.0	61.2%	4.0	88.9%
FT Instructor	0.0	0.0%	0.0	0.0%	0.0	0.0%
PT Instructor	0.8	16.7%	1.9	38.8%	0.5	11.1%
TOTAL	4.8	100.0%	4.9	100.0%	4.5	100.0%

Table 9. COURSES BY COURSE LEVEL BY TERM AY 2007

Level/Course Level	Summer Courses	Fall Courses	Spring Courses	Total Courses
Undergraduate				
Remedial - 000	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Lower - 100	1 50.0%	10 45.5%	11 55.0%	22 50.0%
Lower - 200	0 0.0%	4 18.2%	3 15.0%	7 15.9%
Upper - 300	0 0.0%	4 18.2%	1 5.0%	5 11.4%
Upper - 400	1 50.0%	4 18.2%	5 25.0%	10 22.7%
Subtotal Undergraduates	2 100.0%	22 100.0%	20 100.0%	44 100.0%
Graduate				
Graduate - 500	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Subtotal Graduates	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Total	2 100.0%	22 100.0%	20 100.0%	44 100.0%

CISB		2002-2003												
Program	Degc	EmphCd	Description	2002				TOTAL	2002-2003				TOTAL	
				Majr1	Majr2	Majr3	Majr4		Majr1	Majr2	Majr3	Majr4		
abc	4	BBA	3123	Business Computer Info System	19	0	3	0	22	10	0	1	0	11
abc	4	BS	3165	Computer Information Systems	18	0	0	0	18	22	0	1	0	23
abc	5	BS	3193	Pre-Computer Info Systems	47	1	5	0	53	42	1	4	0	47
CISB Totals				84	1	8	0	93	74	1	6	0	81	

2003-2004												2004-2005											
Program	Degc	EmphCd	Description	2003-2004				TOTAL	2004-2005				TOTAL										
				Majr1	Majr2	Majr3	Majr4		Majr1	Majr2	Majr3	Majr4											
				3	0	1	0	4	14	2	0	0	16										
				36	0	0	0	36	29	1	0	0	30										
				32	1	9	0	42	21	1	7	0	29										
				71	1	10	0	82	64	4	7	0	75										

2005-2006												2006-2007											
Program	Degc	EmphCd	Description	2005-2006				TOTAL	2006-2007				TOTAL										
				Majr1	Majr2	Majr3	Majr4		Majr1	Majr2	Majr3	Majr4											
				2	0	1	0	3	1	0	0	0	1										
				29	1	0	0	30	19	0	1	0	20										
				21	1	7	0	29	21	0	5	0	26										
				52	2	8	0	62	41	0	6	0	47										

INSTRUCTOR TYPE	TRACK	COURSE CREDIT HOURS	HEADCOUNT ENROLLMENT	STUDENT CREDIT HOURS	FTEF	FTEF	FTEF/ FTEF
	A Total	86.000	526	1,558.00	3.58	51.93	14.49
	B Total	13.000	4	13.00	0.54	0.43	0.80
1 - T/TT Total			99.000		530	1,571.00	4.13
	A Total	12.000	81	243.00	0.50	8.10	16.20
6 - PT Total		12.000	81	243.00	0.50	8.10	16.20
Grand Total			111.000		611	1,814.00	4.63
							60.47
							13.07

subj	coursen	v4	iname	fname	indiv	SFRSTC12	enroll	crhr_sum	FTEF	FTES	FTES/FTEF
CISB	101	1 - T/TT	Carpenter	Donald	A	3.000	25	75.00			
CISB	451	1 - T/TT	Carpenter	Donald	A	3.000	10	30.00			
CISB	101	1 - T/TT	Carpenter	Donald	A	3.000	21	63.00			
CISB	100	1 - T/TT	Carpenter	Donald	A	1.000	6	6.00			
CISB	471	1 - T/TT	Carpenter	Donald	A	3.000	6	18.00			
CISB	442	1 - T/TT	Carpenter	Donald	A	3.000	14	42.00			
CISB	101	1 - T/TT	Carpenter	Donald	A	3.000	29	87.00			
			A Total			19.000	111	321.00			
CISB	495	1 - T/TT	Carpenter	Donald	B	3.000	1	3.00			
CISB	495	1 - T/TT	Carpenter	Donald	B	1.000	1	1.00			
CISB	495	1 - T/TT	Carpenter	Donald	B	3.000	1	3.00			
			B Total			7.000	3	7.00			
			Carpenter Total			26.000	114	328.00	1.08	10.93	10.09
CISB	393	1 - T/TT	Mayer	Robert	B	6.000	1	6.00			
			B Total			6.000	1	6.00			
			Mayer Total			6.000	1	6.00	0.25	0.20	0.80
CISB	205	1 - T/TT	Slauson	Gayla	A	3.000	26	78.00			
CISB	205	1 - T/TT	Slauson	Gayla	A	3.000	17	51.00			
CISB	392	1 - T/TT	Slauson	Gayla	A	3.000	10	30.00			
CISB	101	1 - T/TT	Slauson	Gayla	A	3.000	20	60.00			
CISB	305	1 - T/TT	Slauson	Gayla	A	3.000	12	36.00			
CISB	205	1 - T/TT	Slauson	Gayla	A	3.000	27	81.00			
CISB	101	1 - T/TT	Slauson	Gayla	A	3.000	27	81.00			
CISB	101	1 - T/TT	Slauson	Gayla	A	3.000	20	60.00			
CISB	305	1 - T/TT	Slauson	Gayla	A	3.000	14	42.00			
			Slauson Total			27.000	173	519.00	1.13	17.30	15.38
CISB	460	1 - T/TT	Snyder	John	A	3.000	1	3.00			
CISB	101	1 - T/TT	Snyder	John	A	3.000	25	75.00			
CISB	460	1 - T/TT	Snyder	John	A	3.000	9	27.00			
CISB	400	1 - T/TT	Snyder	John	A	3.000	13	39.00			
CISB	101	1 - T/TT	Snyder	John	A	3.000	27	81.00			
			Snyder Total			15.000	75	225.00	0.63	7.50	12.00
			A Total			15.000	75	225.00			

CISB	101	1 - T/TT	Winniford	MaryAnne	A	3,000	25	75.00				
CISB	210	1 - T/TT	Winniford	MaryAnne	A	3,000	19	57.00				
CISB	101	1 - T/TT	Winniford	MaryAnne	A	3,000	23	69.00				
CISB	331	1 - T/TT	Winniford	MaryAnne	A	3,000	8	24.00				
CISB	101	1 - T/TT	Winniford	MaryAnne	A	3,000	25	75.00				
CISB	101	1 - T/TT	Winniford	MaryAnne	A	3,000	24	72.00				
CISB	210	1 - T/TT	Winniford	MaryAnne	A	3,000	26	78.00				
CISB	100	1 - T/TT	Winniford	MaryAnne	A	1,000	4	4.00				
CISB	101	1 - T/TT	Winniford	MaryAnne	A	3,000	13	39.00				
			A Total			25,000	167	493.00				
			Winniford Total			25,000	167	493.00				
		1 - T/TT Total				99,000	530	1,571.00				
CISB	101	6 - PT	Low	Ronald	A	3,000	24	72.00			1.04	15.78
CISB	101	6 - PT	Low	Ronald	A	3,000	25	75.00			4.13	12.69
CISB	205	6 - PT	Low	Ronald	A	3,000	18	54.00				
CISB	101	6 - PT	Low	Ronald	A	3,000	14	42.00			16.43	
			A Total			12,000	81	243.00			52.37	
		6 - PT Total	Low Total			12,000	81	243.00			8.10	16.20
			Total			12,000	81	243.00			0.50	
100 level							379					
200 level							133					
300 level							45					
400 level							56					
total							613					
Grand Total			Grand Total			111	1837	1814				
			Grand Total			111	1837	1814				
			Grand Total			111	1837	1814				

Undergraduate CISB, Summer Terms 2002-2006
Mesa State College

Level	Major Code	Program Name	2002	2003	2004	2005	2006
Freshman	3123	Business Computer Info Systems	0	0	0	0	0
	3165	Computer Information Systems	0	0	0	0	0
	3193	Pre-Computer Info Systems	1	0	0	0	1
	TOTAL		1	0	0	0	1
Sophomore	3123	Business Computer Info Systems	1	0	0	0	0
	3165	Computer Information Systems	0	0	0	0	0
	3193	Pre-Computer Info Systems	2	1	1	0	1
	TOTAL		3	1	1	0	1
Junior	3123	Business Computer Info Systems	4	1	0	0	0
	3165	Computer Information Systems	0	0	0	0	2
	3193	Pre-Computer Info Systems	2	3	4	2	0
	TOTAL		6	4	4	2	2
Senior	3123	Business Computer Info Systems	4	3	1	0	0
	3165	Computer Information Systems	2	2	5	8	2
	3193	Pre-Computer Info Systems	5	4	4	4	0
	TOTAL		11	9	10	12	2
ALL CLASSES	3123	Business Computer Info Systems	9	4	1	0	0
	3165	Computer Information Systems	2	2	5	8	4
	3193	Pre-Computer Info Systems	10	8	9	6	0
	TOTAL		21	14	15	14	6

Undergraduate CISB, Fall Terms 2002-2006
Mesa State College

Level	Major Code	Program Name	2002	2003	2004	2005	2006
Freshman	3123	Business Computer Info Systems	0	0	0	0	0
	3165	Computer Information Systems	0	0	0	0	1
	3193	Pre-Computer Info Systems	15	11	11	6	2
	TOTAL		15	11	11	6	3
Sophomore	3123	Business Computer Info Systems	5	0	0	0	0
	3165	Computer Information Systems	1	0	0	0	1
	3193	Pre-Computer Info Systems	13	12	7	3	3
	TOTAL		19	12	7	3	4
Junior	3123	Business Computer Info Systems	6	3	0	1	0
	3165	Computer Information Systems	0	3	6	2	2
	3193	Pre-Computer Info Systems	5	14	8	8	2
	TOTAL		11	20	14	11	4
Senior	3123	Business Computer Info Systems	8	7	3	1	1
	3165	Computer Information Systems	13	10	24	25	12
	3193	Pre-Computer Info Systems	14	10	6	5	5
	TOTAL		35	27	33	31	18
ALL CLASSES	3123	Business Computer Info Systems	19	10	3	2	1
	3165	Computer Information Systems	14	13	30	27	16
	3193	Pre-Computer Info Systems	47	47	32	22	12
	TOTAL		80	70	65	51	29

Undergraduate CISB, Spring Terms 2003-2007
Mesa State College

Level	Major Code	Program Name	2003	2004	2005	2006	2007
Freshman	3123	Business Computer Info Systems	0	0	0	0	0
	3165	Computer Information Systems	0	0	0	0	0
	3193	Pre-Computer Info Systems	7	3	6	1	3
	TOTAL		7	3	6	1	3
Sophomore	3123	Business Computer Info Systems	2	0	0	0	0
	3165	Computer Information Systems	0	0	2	0	1
	3193	Pre-Computer Info Systems	13	11	5	6	4
	TOTAL		15	11	7	6	5
Junior	3123	Business Computer Info Systems	6	1	0	0	0
	3165	Computer Information Systems	1	4	7	1	2
	3193	Pre-Computer Info Systems	9	12	5	8	7
	TOTAL		16	17	12	9	9
Senior	3123	Business Computer Info Systems	9	7	2	1	1
	3165	Computer Information Systems	16	17	22	24	14
	3193	Pre-Computer Info Systems	12	8	11	5	5
	TOTAL		37	32	35	30	20
ALL CLASSES	3123	Business Computer Info Systems	17	8	2	1	1
	3165	Computer Information Systems	17	21	31	25	17
	3193	Pre-Computer Info Systems	41	34	27	20	19
	TOTAL		75	63	60	46	37

Appendix B

Finance and budget sheets for past 5 years

The tables in this section are provided by Mesa State College's Budget Office. The choice of reports and data within them are standardized. The CIS faculty has not validated those data. The three reports provided are for fiscal years 2004, 2005 and 2006. The fiscal year is July 1 through June 30.

MESA STATE COLLEGE

FY04 Cost Analysis

Dept/Subj	BANNER	CH Total	F	Faculty	Cc	Class	Con	Dept	Heac	Admin	Col	Academic	Stud	Srvs	Instit	Supp	Plant	Alloc	OCE	
CISB																				
			1,738	182,745		-	1,016					53,359	32,586	29,775	40,268					
			252	44,809		-	147				7,737	4,725	4,317	5,839						
			1,990	227,554		0	1,164				0	61,096	37,311	34,093	46,106					
			1120 Total																	

TOTAL CCAL COSTS/CH

364,830	210
71,210	283
436,040	492

MESA STATE COLLEGE
 RI CREDIT HOURS
 INSTRUCTIONAL DEPT COSTS BY DISC BY DIVISION
 Cost Allocation Methodology: Modified Credit Hour
 FY05

<u>CAMPUS/ORG</u>	<u>DISC</u>	<u>LEVEL</u>	<u>CH'S</u>	<u>Fac FTE</u>	<u>FAC COMP</u>	<u>FAC COMI</u>	<u>TL FAC CC</u>	<u>VAR/CH</u>	<u>DEPT HEA</u>
COMP INFO SYS									
MAIN	1120 CISB	DIVISION Lower Divis	1,821	0.386788	165,175		165,175	91	2,242
MAIN	1120 CISB	Upper Divis	290	0.061597	61,092		61,092	211	357
	1120 Total		2,111	1	226,267	-	226,267	301	2,599

<u>EXEMPT</u>	<u>SUPP STA</u>	<u>TL OTH CI</u>	<u>OTH EXP</u>	<u>CFEES</u>	<u>TL OCE E</u>	<u>OTH INST</u>	<u>ACADEMI</u>	<u>STUDENT</u>	<u>INSTIT SL</u>	<u>PLANT</u>	<u>TOTAL FI</u>	<u>FIXED/CH</u>
-	3,424	5,666	5,908	1,710	7,618	6,455	29,721	33,512	25,943	37,710	146,625	81
-	545	902	941	272	1,213	1,028	4,733	5,337	4,131	6,005	23,351	81
-	3,970	6,569	6,849	1,982	8,831	7,483	34,454	38,849	30,074	43,716	169,976	161

TOTAL CI BY DEPT LOWER T UPPER T GRAD TL BY DISC TL/CH

311,800	171											
84,443	291				188							
396,243	462	-	-	-	188							

MSC
 FY06 Instructional Costs
 RI

Method: Modified Credit Hour with Depreciation

Program	Division	Credit Hrs	Fac FTE	Faculty	Alloc	Grad al	Compt/Va	VAR/CH	Classific	Oth Costs	Course F	Instructio		grad cost
												Instructio	Other Costs	
Comp Info Systems														
CISB	Lower	1,653		179,346	721	180,067	109	5,206	6,492	3,398				
CISB	Upper	372		92,154	162	92,316	248	1,172	1,461	765				
CISB	Graduate	33		7,708	14	8,939	271	104	130	68				415
		2,058	4	279,208	898	281,322	628	6,482	8,082	4,231				415
Subtotal														
<u>TL Oth C</u>	<u>Oth Instr</u>	<u>AS spec</u>	<u>AS alloc</u>	<u>SS alloc</u>	<u>IS alloc</u>	<u>POM sf</u>	<u>POM allo</u>	<u>Tuit Supp</u>	<u>Depreciat</u>	<u>Total Fixe</u>	<u>Fixed/CH</u>	<u>TOTAL</u>		
9,890	5,268	-	26,480	31,982	36,508	-	36,368	18,444	26,300	196,446	119	376,514		
2,226	1,186		5,959	7,197	8,216		8,184	4,151	5,919	44,209	119	136,525		
612	105		529	638	729		726	368	525	4,337	131	13,275		
12,728	6,559		32,968	39,818	45,453		45,278	22,963	32,743	244,992	369	526,314		

TL COST	Remedial		Lower		Upper		Grad		By Disc	
	TL/CH	TL/CH	TL/CH	TL/CH	TL/CH	TL/CH	TL/CH	TL/CH	TL/CH	TL/CH
228										
367										
402										402
997										402

Appendix C

Library Assessment

The report in this appendix was prepared by the Thomlinson Library staff.

**Library Program Assessment
John U. Tomlinson Library
Mesa State College**

Date of Assessment: July 2007

Purpose of Assessment: Program Review

Program under review: Computer Information Systems

Program Level/s: Bachelors

Liaison Signature: This review was prepared by Tom Harris

1. Collection Assessment

Course descriptions, as found in the Mesa State College catalog, have been examined to identify the following Library of Congress subject headings to assist with this evaluation:

Business – Communication Systems; Business – Computer Programs; Business – Data Processing; Business Enterprises – Computer Networks; Computer Networks; Computer Networks – Security Measures; Computers – Access Control; Data Transmission Systems; Database Management; Decision Support Systems; Electronic Commerce; Electronic Commerce – Management; Electronic Commerce – Social Aspects; Electronic Data Processing; Electronic Spreadsheets; Expert Systems (Computer Science); Information Resources Management; Information Storage and Retrieval Systems – Business; Information Technology; Information Technology - Moral and Ethical Aspects; Information Technology – Security Measures; Management Information Systems; System Analysis; System Design; System Theory; Word Processing

An examination of the subject headings listed above indicates that there are about 1,050 titles in the collection.

a. Reference Support:

The reference collection has a variety of resources covering business and computing topics. These include specialized dictionaries, handbooks and encyclopedias.

b. Monographic Sources

Age Analysis (include at the discretion of the Liaison)

28% have been published since 2000

38% published 1900 – 1999

22% published 1980 – 1989

8% published 1970 – 1979

3% published before 1970

c. Periodicals

Support for this program is primarily through online subscription databases maintained by Tomlinson Library. *Business Source Premier* and *Omnifile Select: Applied Science and Technology* are databases that provide full-text coverage to a variety of periodical resources. Examining *Business Source Premier*, full-text article availability is illustrated through a sampling of several of the LC subject headings:

Computer Networks – Security Measures: 4,103 full-text articles

Database Management: 3,040 full-text articles

Management Information Systems: 3,881 full-text articles

Some titles that are specific to this program include: *ACM Transactions on Database Systems*, *MIS Quarterly*, and *Journal of Computer Information Systems*.

d. Electronic Resources

In addition to the online resources identified above, databases such as *Oxford Reference Online* provide access to quality specialized dictionaries in the areas of business and computing. The LC subject heading analysis also revealed that about 26% of titles supporting this program are in an electronic format.

2. Evaluation of the total collection

a. Strengths

Electronic access seems to be quite good. These items can be accessed by MSC students, faculty and staff 24 hours a day. The monographic collection is fairly current with 28% of titles published since 2000, and two-thirds of the collection published since 1990.

b. Weaknesses

Review of this collection on a regular basis will remove dated material.

3. Recommendations

CISB faculty actively participate in the selection of materials for the library collection. It is anticipated that this will continue into the future and is a necessity as this is an ever changing field of study.

Library funding for the CISB program within the Business Administration Department must continue into the future and should reflect the increasing cost of library materials. New resources will continue to be added for this rapidly changing area of study. It is not anticipated that additional funding is necessary at this time.

Library Director: Elizabeth W. Brodak

Date: August 1, 2007

Appendix D

Most recent program review document (provided by the department)

This 2002-07 program review is the first program review of Mesa State College's CIS program. Prior to creation of the BS in CIS, CISB was included as a concentration in the BBA program. 1996-97 was the last time a program review of the BBA program was conducted when it included the CISB concentration. That review did not address the concentration areas individually. That review document is available on request, but not included herein.

Abstract

Abstract text, likely describing the study's purpose and findings.

Main body of text, possibly containing a list of references or detailed study information.

Appendix E

Assessment Plan and Results

Included is the 2006-07 annual assessment report and the 2007-08 annual assessment plan for BS in CIS.

The reader will note that the assessment measurements in the 2007-08 plan are reorganized and expanded from earlier plans. Those expansions include a more detailed examination of the ICCP Core Exam results to determine the effective of the CISB courses on a objective-by-objective (i.e., IS2002 Learning Unit) basis.

Reports and plans for 2002-03 through 2005-06 are available for inspection in the CIS faculty offices.

Program Assessment for:

**Undergraduate Computer
Information Systems Program**

August 2006 through July 2007

Assessment Period

Date Submitted:

15-Sep-07

Column 1

Expanded Statement of Institutional Purpose

Column 2

**Program Intended Educational
Outcomes**

1. Graduates will demonstrate mastery in systems theory and concepts, Information Technology tools, systems analysis, design and development methodologies and problem solving as applied to computer hardware, software, and networks appropriate for the bachelor's degree level.

Column 3

**Means of Program
Assessment and Criteria for
Success:**

1a. The students will complete a standardized test supplied by ICCP. The average score on the ICCP Core exam will be at or above the 50% level.

Column 4

**Summary of Data
Collected:**

1a. Six of six CIS seniors took the ICCP exam. The average percent score overall of these students was 57.2.

Column 5

Use of Results

1a. **Met standard.** The ICCP test has many facets, and results provided include detailed explanations on how students are doing on a number of objectives that come from national curriculum standards. We can see from the test, that all courses need to be fine-tuned to follow the national standard. The CIS faculty will pay closer attention to that aspect in future assessments.

Mission Statement

The principal focus of our university's curricular program is undergraduate education in the liberal arts and sciences and a limited number of professional, technical, and graduate programs.

1b. The program adheres to a national curriculum model that is under constant revision for currency and reviewed by a local advisory board. In addition, an employer and graduate survey shall be administered 1 year after graduation.

1b. The CIS program continues to follow the national curriculum model and is constantly revised. A local advisory board was formed and polled, with the indication that the CIS curriculum does meet their needs by including training in nearly all the knowledge and skill sets important to them. An alumni survey was mailed to 280 alumni, 17 of those responded, and 28 surveys returned as undeliverable. As a group, the respondents reported their CIS degree prepared them well with necessary business and information systems knowledge as well as communications and analytical skills for their first positions after graduation. An employer survey has not yet been administered.

1b. **Met standard** of adhering to national model curriculum, although refinement is a continuous effort. Toward that end, the CIS faculty will exam results of the ICCP exam on an objective by objective basis. **Met standards** of surveys of a local advisory board and alumni, with results indicating the CIS curriculum is strong. **Did not meet standard** of conducting an employer survey.

2. Graduates will demonstrate knowledge in economics and organization functions (such as accounting, distribution, finances, human resources, marketing, and productions) as applied locally, nationally, and globally - appropriate for the bachelor's degree level.

2a. The average score on the Business MFT exam will be at or above the 50 percentile level.

2a. All six CIS students in the capstone course took the MFT and, as a group, scored at the 70th percentile for accounting, economics, finance, legal, international issues, marketing, and management.

2a. **Met standard.** Weaknesses in this area are certainly not apparent based on the ETS Major Field Test scores.

Goal Statement

2b. Seniors will be surveyed in the capstone course with the expectation that at least 90% will state that they had the necessary business and information technology skills for an entry level position.

2b. **Met standard.** CIS graduates are well prepared in business and CIS.

... all graduates of baccalaureate level will have developed a depth of understanding in their major field

3. Graduates will demonstrate proficiency at general and technical writing and oral communication skills appropriate for the bachelor's degree level.

3a. Students will complete a major project and presentation in CISB 471. A CIS faculty jury will read projects and evaluate the presentations. 90% of the students will demonstrate writing and communication proficiency skills by attaining a 85% or greater score.

3a. Six students in CISB 471 completed a major project and presented it to faculty. 100% of the students passed the verbal and written faculty evaluation.

3a. **Met standard.** No evident need for improvement in communications skills is evidenced by the results of this objective.

3b. Graduates will be surveyed with the expectation that at least 90% will state that they had the necessary communication skills for their entry level position.

3b. All six seniors in the capstone course were surveyed. The results indicated that they felt they were well prepared in written and oral communications skills.

3b. **Met standard.** CIS graduates are well prepared with written and oral communications skills.

4. Graduates will demonstrate proficiency in quantitative analysis, introduction to calculus, and statistics appropriate for the bachelor's degree level.

4a. Graduates will score at the 50 percentile on the Quantitative Analysis subtest of the MFT exam.

4a. Six CIS students that took the MFT averaged at the 75th percentile on the portion of the test related to Quantitative Business Analysis.

4a. **Met standard.** This instrument does not indicate a need at this time for changes in the program specifically aimed at improving quantitative analysis.

PROGRAM ASSESSMENT PLAN

Computer Information Systems
(Instructional Degree Program)

B.S.
(Degree Level)

August 2007 through July 2008
(Assessment Period Covered)

1 November 2006
(Date Submitted)

Submitted By: Don Carpenter, CIS Faculty Assessment Representative
(Department Head or Faculty Assessment Representative)

Expanded Statement of Institutional Purpose Linkage:

Institutional Mission / College Goals Reference: The principal focus of our college's curricular program is undergraduate education in the liberal arts and sciences and a limited number of professional, technical, and graduate programs.

For Computer Information Systems – all graduates at the baccalaureate level will have developed a depth of understanding in their major field, in business supporting fields, in critical and analytical skills, and in written and oral communications appropriate to their major field.

Intended Educational (Student) Outcomes:

1. Graduates will demonstrate mastery in systems theory and concepts, information technology tools, systems analysis, design and development methodologies and problem solving as applied to computer hardware, software, and networks appropriate for the bachelor's degree level.

2. Graduates will demonstrate knowledge in economics and business functions (such as accounting, business law, finance, management, marketing, and quantitative methods) as applied locally, nationally, and globally - appropriate for the bachelor's degree level.

3. Graduates will demonstrate proficiency at general and technical writing and oral communication skills appropriate for the bachelor's degree level.

4. Graduates will demonstrate proficiency at critical and analytical skills appropriate for the bachelor's degree level.

(Please Copy and Paste to create space for additional Student Outcomes, if needed)

Intended Educational (Student) Outcome #1:

First Means of Program Assessment for Outcome #1:

1a. Means of Program Assessment and Criteria for Success: Students in the CISB 471 capstone course will take the ICCP's Information Systems Analyst certification exam. This exam is designed to evaluate student performance on each of the learning objectives included in the IS 2002 Model Curriculum, to which the MSC CIS program adheres. Mesa State College computer information systems graduates as a group will score at or above the national 50th percent.

1a. Summary of Assessment Data Collected:

1a. Use of Results to Improve Program:

Second Means of Assessment for Outcome #1:

1b. Means of Program Assessment and Criteria for Success: Students in the CISB 471 Capstone course will be surveyed with the expectation that at least 80% will state that they feel well-prepared in necessary computer information systems knowledge and skills for an entry level position in their field.

1b. Summary of Assessment Data Collected:

1b. Use of Results to Improve Program:

Third Means of Assessment for Outcome #1:

1c. Means of Program Assessment and Criteria for Success: In CISB 471, students will accomplish a major team-based project. The project will require them to design and construct a realistic information system. The project will include writing documentation tying the project to CIS theories, principles and practices. The project will also include writing system and user documentation and making an extensive oral presentation. Each project documentation and presentation will be evaluated by all CIS faculty using a rubric developed in AY 2006-2007. Results from the evaluations will demonstrate that students in this program are proficient with computer information knowledge and skills as well as with team participation skills by showing that at least 80% of the students earned passing scores on documentations and presentations.

1c. Summary of Assessment Data Collected:

1c. Use of Results to Improve Program:

Fourth Means of Assessment for Outcome #1:

1d. Means of Program Assessment and Criteria for Success: CIS alumni will be surveyed and a majority of the respondents will report they were sufficiently prepared in necessary CIS knowledge and skills for them to obtain initial employment;

1d. Summary of Assessment Data Collected:

1d. Use of Results to Improve Program:

Fifth Means of Assessment for Outcome #1:

1e. Means of Program Assessment and Criteria for Success: The CIS program adheres to a national curriculum model. CISB courses in the CIS program are continuously reviewed by CIS faculty to insure the knowledge set in CIS is appropriate for CIS students to be able to achieve a mastery of CIS topics stated in the primary intended educational outcome. This review includes (1) a detailed examination of the ICCP exam results that will indicate CIS graduates will score above the 50% proficiency level on the majority of individual course objectives; (2) a survey of advisory board members and employers of CIS alumni from which the majority of respondents will indicate the CIS curriculum is appropriate to prepare students for employment.

1e. Summary of Assessment Data Collected:

1e. Use of Results to Improve Program:

Intended Educational (Student) Outcome #2:

First Means of Assessment for Outcome #2:

2a. Means of Program Assessment and Criteria for Success: Students in the CISB 471 capstone course will take the Business MFT exam. The average score of that group will score at or above the national 50th percentile in the general business areas.

2a. Summary of Assessment Data Collected:

2a. Use of Results to Improve Program:

Second Means of Assessment for Outcome #2:

2b. Means of Program Assessment and Criteria for Success: Students in the CISB 471 capstone course will be surveyed with the expectation that at least 80% will state that they feel well-prepared in necessary business knowledge and skills for an entry level position in their field.

2b. Summary of Assessment Data Collected:

2b. Use of Results to Improve Program:

Third Means of Assessment for Outcome #2:

2c. Means of Program Assessment and Criteria for Success: CIS alumni will be surveyed and a majority of the respondents will report they were sufficiently prepared in necessary business knowledge and skills for them to obtain initial employment;

2c. Summary of Assessment Data Collected:

2c. Use of Results to Improve Program:

Intended Educational (Student) Outcome #3:

First Means of Assessment for Outcome #3:

3a. Means of Program Assessment and Criteria for Success: In CISB 471, students will accomplish a major team-based project. The project will require them to design and construct a realistic information system. The project will include documentation tying the project to CIS theories, principles and practices. The project will also include writing system and user documentation and making an extensive oral presentation. Each project documentation and presentation will be evaluated by all CIS faculty using a rubric to be developed in AY 2005-2006 and modified in AY 2006-07. Results from the evaluations will demonstrate that students in this program are proficient with writing and oral communications skills by showing that at least 80% of the students earned passing scores on documentations and presentations.

3a. Summary of Assessment Data Collected:

3a. Use of Results to Improve Program:

Second Means of Assessment for Outcome #3:

3b. Means of Program Assessment and Criteria for Success: Students in the CISB 471 Capstone course will be surveyed with the expectation that at least 80% will state that feel well-prepared in discipline-specific communication skills for an entry level position in their field.

3b. Summary of Assessment Data Collected:

3b. Use of Results to Improve Program:

Third Means of Assessment for Outcome #3:

3c. Means of Program Assessment and Criteria for Success: CIS alumni will be surveyed and a majority of the respondents will report they were sufficiently prepared in discipline-specific communications skills for them to obtain initial employment;

3c. Summary of Assessment Data Collected:

3c. Use of Results to Improve Program:

Intended Educational (Student) Outcome #4:

First Means of Assessment for Outcome #4:

4a. Means of Program Assessment and Criteria for Success: Students in the CISB 471 capstone course will take Quantitative Methods portion of the Business MFT exam and as a group will score at or above the national 50th percentile.

4a. Summary of Assessment Data Collected:

4a. Use of Results to Improve Program:

Second Means of Assessment for Outcome #4:

4b. Means of Program Assessment and Criteria for Success: Students in the CISB 471 Capstone course will be surveyed with the expectation that at least 80% will state that feel well-prepared in critical and analytical skills.

4b. Summary of Assessment Data Collected:

4b. Use of Results to Improve Program:

Third Means of Assessment for Outcome #4:

4c. Means of Program Assessment and Criteria for Success: CIS alumni will be surveyed and a majority of the respondents will report they were sufficiently prepared in critical and analytical skills for them to obtain initial employment;

4c. Summary of Assessment Data Collected:

4c. Use of Results to Improve Program:

Appendix E

External Accreditation Summary

There is no external accreditation summary to be included.

Rather, the Accrediting Board for Engineering and Technology's 2007-08 Evaluation Criteria for Information Systems Programs are reproduced on the next pages. The Computer Information Systems faculty believes the BS in CIS meets or is in the process of meeting all those evaluation criteria. The CIS faculty requests that the External Reviewer comment on those evaluation criteria that the BS in CIS does not meet.

CHAPTER 10: THE HISTORY OF THE UNITED STATES

10.1 THE FOUNDING OF THE UNITED STATES

The United States was founded in 1776, when the thirteen original colonies declared their independence from Great Britain. The Declaration of Independence was signed on July 4, 1776, in Philadelphia. The new nation was based on the principles of liberty, justice, and equality for all.

ABET Criteria for Accrediting Information Systems Programs

Effective for Evaluations during the 2007-2008 Accreditation Cycle

I. Objectives and Assessments

Intent

The program has documented educational objectives that are consistent with the mission of the institution. The program has in place processes to regularly assess its progress against its objectives and uses the results of the assessments to identify program improvements and to modify the program's objectives.

Standards

- I-1. The program must have documented educational objectives.
- I-2. The program's objectives must include expected outcomes for graduating students.
- I-3. Mechanisms must be in place to periodically review the program and the courses.
- I-4. The results of the program's assessment must be used to help identify and implement program improvement.
- I-5. The results of the program's review and the actions taken must be documented.

II. Students

Intent

Students can complete the program in a reasonable amount of time. Students have ample opportunity to interact with their instructors and are offered timely guidance and advice about the program's requirements and their career alternatives. Students who graduate the program meet all program requirements.

Standards

- II-1. Courses must be offered with sufficient frequency for students to complete the program in a timely manner.
- II-2. Information systems programs must be structured to ensure effective interaction between teaching faculty and students.
- II-3. Advising on program completion, course selection and career opportunities must be available to all students.
- II-4. There must be established standards and procedures to ensure that graduates meet the requirements of the program.

III. Faculty

Intent

Faculty members are current and active in the discipline and have the necessary technical breadth and depth to support a modern information systems program.

Standards

- III-1. The interests, qualifications, and scholarly contributions of the faculty members must be sufficient to teach the courses, plan and modify the courses and curriculum, and to remain abreast of current developments in information systems.
- III-2. All faculty members must have a level of competence that would normally be obtained through graduate work in information systems.
- III-3. A majority of the faculty members should hold terminal degrees. Some full-time faculty members must have a Ph.D. in information systems or a closely related area.
- III-4. All faculty members must remain current in the discipline.

IV. Curriculum

Intent

The curriculum combines professional requirements with general education requirements and electives to prepare students for a professional career in the information systems field, for further study in information systems, and for functioning in modern society. The professional requirements include coverage of basic

and advanced topics in information systems as well as an emphasis on an IS environment. Curricula are consistent with widely recognized models and standards.

Standards

Curriculum standards are specified in terms of semester-hours of study. Thirty semester-hours generally constitutes one year of full-time study and is equivalent to 45 quarter-hours. A course or a specific part of a course can only be applied toward one standard.

General

IV-1. The curriculum must include at least 30 semester-hours of study in information systems topics.

IV-2. The curriculum must contain at least 15 semester-hours of study in an information systems environment, such as business.

IV-3. The curriculum must include at least 9 semester-hours of study in quantitative analysis as specified below under quantitative analysis.

IV-4. The curriculum must include at least 30 semester-hours of study in general education to broaden the background of the student.

Information systems

IV-5. All students must take a broad-based core of fundamental information systems material consisting of at least 12 semester hours.

IV-6. The core materials must provide basic coverage of the hardware and software, a modern programming language, data management, networking and telecommunications, analysis and design, and role of IS in organizations.

IV-7. Theoretical foundations, analysis, and design must be stressed throughout the program.

IV-8. Students must be exposed to a variety of information and computing systems and must become proficient in one modern programming language.

IV-9. All students must take at least 12 semester hours of advanced course work in information systems that provides breadth and builds on the IS core to provide depth.

Information Systems Environment

IV-10. The 15 semester hours must be a cohesive body of knowledge to prepare the student to function effectively as an IS professional in the IS environment.

Quantitative Analysis

IV-11 The curriculum must include at least 9 semester-hours of quantitative analysis beyond pre-calculus.

IV-12 Statistics must be included.

IV-13 Calculus or discrete mathematics must be included.

Additional Areas of Study

IV-14. The oral and written communications skills of the student must be developed and applied in the program.

IV-15. There must be sufficient coverage of global, economic, social and ethical implications of computing to give students an understanding of a broad range of issues in these areas.

IV-16 Collaborative skills must be developed and applied in the program.

V. Technology Infrastructure

Intent

Computer resources are available, accessible, and adequately supported to enable students to complete their course work and to support faculty teaching needs and scholarly activity.

Standards

V-1. Each student must have adequate and reasonable access to the systems needed for each course.

V-2. Documentation for hardware and software must be readily accessible to faculty and students.

V-3 All faculty members must have access to adequate computing resources for class preparation and for scholarly activities.

V-4 There must be adequate support personnel to install and maintain computing resources.

V-5 Instructional assistance must be provided for the computing resources.

VI. Institutional Support and Financial Resources

Intent

The institution's support for the program and the financial resources available to the program are sufficient to provide an environment in which the program can achieve its objectives. Support and resources are sufficient to provide assurance that an accredited program will retain its strength throughout the period of accreditation.

Standards

VI-1. Support for faculty must be sufficient to enable the program to attract and retain high quality faculty capable of supporting the program's objectives.

VI-2. There must be sufficient support and financial resources to allow faculty members to attend national technical meetings with sufficient frequency to maintain competence as teachers and scholars.

VI-3 There must be support and recognition of scholarly activities.

VI-4 There must be office support consistent with the type of program, level of scholarly activity, and needs of the faculty members.

VI-5 Adequate time must be assigned for the administration of the program.

VI-6 Upper levels of administration must provide the program with the resources and atmosphere to function effectively with the rest of the institution.

VI-7 Resources must be provided to acquire and maintain laboratory facilities that meet the needs of the program.

VI-8 Resources must be provided to support library and related information retrieval facilities that meet the needs of the program.

VI-9 There must be evidence of continuity of institutional support and financial resources.

VII. Program Delivery

Intent

There are enough faculty members to cover the curriculum reasonably and to allow an appropriate mix of teaching and scholarly activity.

Standards

VII-1. There must be enough full-time faculty members with primary commitment to the program to provide continuity and stability.

VII-2. Full-time faculty members must oversee all course work.

VII-3 Full-time faculty members must cover most of the total classroom instruction.

VII-4 Faculty members must remain current in the discipline.

VII-5 All full-time faculty members must have sufficient time for scholarly activities and professional development.

VII-6 Advising duties must be a recognized part of faculty members' workloads.

VIII. Institutional Facilities

Intent

Institutional facilities including the library, other electronic information retrieval systems, computer networks, classrooms, and offices are adequate to support the objectives of the program.

Standards

VIII-1. The library that serves the information systems program must be adequately staffed with professional librarians and support personnel.

VIII-2. The library's technical collection must include up-to-date textbooks, reference works, and publications of professional and research organizations.

VIII-3. Systems for locating and obtaining electronic information must be available.

VIII-4 Classrooms must be adequately equipped for the courses taught in them.

VIII-5 Faculty offices must be adequate to enable faculty members to meet their responsibilities to students and for their professional needs.

Appendix F

Other relevant data (provided by the department)

Three relevant documents are included in this section.

- The first is a listing of the four CIS committees, and responsibilities and membership.
- The second is a draft of the potential income and expenditures from the new course fees.
- The third is the proposal to the Business Faculty regarding the proper required CIS course in the BBA, including the outline of the plan of action for the next couple years.
- The fourth is a list of current and planned activities to encourage growth in the CIS program

2. Theorem

Let $f: X \rightarrow Y$ be a function. Then f is injective if and only if

$f(x) = f(y) \implies x = y$ for all $x, y \in X$.

Proof. Suppose f is injective. Let $x, y \in X$ such that $f(x) = f(y)$. Then

$f(x) = f(y) \implies x = y$ because f is injective. Conversely, suppose

$f(x) = f(y) \implies x = y$ for all $x, y \in X$. Let $x, y \in X$ such that $f(x) = f(y)$. Then

$x = y$ because $f(x) = f(y) \implies x = y$. Thus f is injective. \square

Let $f: X \rightarrow Y$ be a function. Then f is surjective if and only if

2006 ~ 2007 CIS Departmental Committees

Curriculum and Advising Committee—Chair Johnny Snyder

- Curriculum—Don Carpenter
 - planning for course and program changes/modifications
 - paperwork for course and program changes/modifications
 - presentations to curriculum committee and/or faculty senate
- Advising—Johnny Snyder
 - SOAR sessions coordination of volunteers
 - transfer student advising coordination
 - coordinator for advising majors in CIS
 - CIS program applicant criteria and paperwork check

Assessment and Accreditation Committee—Chair Don Carpenter

- Assessment—Don Carpenter
 - assessment reports coordination
 - student surveys
- ICCP—Gayla Jo Slauson
 - ICCP test question writing and review contact
 - ICCP test administration coordination
- Accreditation—Don Carpenter
 - accreditation criteria monitoring
 - accreditation criteria progress coordination

Public Relations/Faculty Development/Recruitment/Retention Committee—Chair MaryAnne Winniford

- Public Relations—Johnny Snyder
 - community liaison contact
 - community advisory board coordinator
 - brochures for program
 - open house for CIS program
- Faculty Development—Gayla Jo Slauson
 - coordination with *all* instructors of CIS courses
 - TECI 260
 - CISB 101
 - CSCI 110
 - High School instructors of CISB 101

- Conference Attendance—Johnny Snyder
 - conference coordination
 - paper coordination
- Recruitment and retention—MaryAnne Winniford and Johnny Snyder
 - AITP student chapter advisor
 - recruiting at high schools/community colleges

Scheduling and Facilities Committee—Gayla Jo Slauson

- Scheduling—Gayla Jo Slauson
 - course schedule for semester
 - instructor
 - course number
 - room
 - independent study/reading coordinator
- Facilities—MaryAnne Winniford
 - CIS lab set-up
 - hardware/software coordination
 - faculty computer upgrade coordinator
 - manage lab fees
 - supervise lab assistants

ANALYSIS OF COMPUTER INFORMATION SYSTEMS (CISB) LAB FEES

CISB Course Number	Course Title	Year Course Added or Modified	Projected Annual Head Count	2006-07 Fees	Proposed Additional Fees	Estimated		Estimated	
						Present Annual Income	Additional Annual Income	Total Annual Income	Total Annual Income
100	Basic Computer Skills	2005-6	20			-	-	-	-
101	Business Information Technology	2007-8	500		\$25	-	\$ 12,500	\$ 12,500	\$ 12,500
205	Advanced Business Software	*	60	\$25		\$ 1,500	-	\$ 1,500	\$ 1,500
210	Fundamentals of Information Systems	*	40	\$25		\$ 1,000	-	\$ 1,000	\$ 1,000
300	Information Systems Architecture	2007-8	20		\$25	-	\$ 500	\$ 500	\$ 500
305	Solving Problems with Software	2006-7	40		\$25	-	\$ 1,000	\$ 1,000	\$ 1,000
331	Advanced Business Programming	2005-6	20		\$25	-	\$ 500	\$ 500	\$ 500
392	Information Systems Theory & Practice	*	20	\$25		\$ 500	-	\$ 500	\$ 500
393	** Cooperative Education	*	4			\$ -	-	-	-
395	** Independent Study	*	4	\$25		\$ 100	-	\$ 100	\$ 100
396	Selected Topics	*	0	\$25		\$ -	-	-	\$ -
400	Data Communications/Network Admin.	*	20	\$25		\$ 500	-	\$ 500	\$ 500
442	Systems Analysis and Design	*	20	\$25		\$ 500	-	\$ 500	\$ 500
451	Database Administration	*	20	\$25		\$ 500	-	\$ 500	\$ 500
460	Electronic Commerce Systems	2005-6	20		\$25	-	\$ 500	\$ 500	\$ 500
471	Advanced Information Systems	*	20	\$25		\$ 500	-	\$ 500	\$ 500
491	** Directed Readings	2006-7	4			-	-	-	-
493	** Cooperative Education	*	4			-	-	-	-
495	** Independent Study	*	4	\$25		\$ 100	-	\$ 100	\$ 100
496	Selected Topics	*	0	\$25		\$ -	-	-	\$ -
500	Management of Information Systems	2006-7	20		\$25	-	\$ 500	\$ 500	\$ 500
560	Electronic Commerce Systems	2006-7	20		\$25	-	\$ 500	\$ 500	\$ 500
TOTALS							\$ 5,200	\$ 16,000	\$ 21,200

* Course was part of initial BS in CIS Curriculum

** Effective fall 2006, an individualized study (coop ed, directed readings, independent study) is strongly suggested for all CIS majors.

BUDGET FOR COMPUTER INFORMATION SYSTEMS (CISB) LABS (based on 3 yr / 6 yr replacement)

Item	Units	Unit Cost	Estimated Cost	Life Span	Annualized Cost
1. Dell server for Windows 2003 VB.Net development environment local area network	1	\$ 5,000	\$ 5,000	3	\$ 1,666.67
2. Additional software for server named in #1, above			\$ 5,000	3	\$ 1,666.67
3. Client stations for local area network named in #1, above	10	\$ 500	\$ 5,000	3	\$ 1,666.67
4. Software for client stationed named in #3, above	10	\$ 500	\$ 5,000	3	\$ 1,666.67
5. Dell server for Linux C++/C# development environment local area network	1	\$ 5,000	\$ 5,000	3	\$ 1,666.67
6. Additional software for server named in #5, above (no charge for open source sw)			N/A	3	N/A
7. Client stations for local area network named in #5, above	10	\$ 500	\$ 5,000	3	\$ 1,666.67
8. Software for client stations named in #6, above (no charge for open source sw)	10	N/A	N/A	3	N/A
9. Workstations for specialized projects in CISB300 & CISB 400. (these workstations are recycled as the clients in #3 & #4 are replaced.)	20	N/A	N/A	3	N/A
10. Software and components for workstations named in #9, above.	20	\$ 500	\$ 10,000	3	\$ 3,333.33
11. Networked printers for networks and workstations named in # 1, 5 & 9, above.	4	\$ 500	\$ 2,000	3	\$ 666.67
12. Cabling, routers, switches, etc. for networks named in # 1, 5 & 9, above			\$ 5,000	6	\$ 833.33
13. Chairs for 40 clients and 2 servers named in #1, 3, 5, 7 & 9, above	42	\$ 150	\$ 6,300	6	\$ 1,050.00
14. Microsoft Academic Alliance departmental license, which allows student access to dozens of software products for use in a variety of courses, especially CISB101 which is a required course in the BBA program. As CIS is part of the Business Department, all business students will have access to that same set of products. Hence, CISB101 students pay \$25 fee once for that access for four years.			\$ 800	1	\$ 800.00
15. Server and software to implement SAP Enterprise software to create a realistic corporate-wide database for students to learn in CISB 101 and then use in most other business courses in the core of the BBA program.			\$ 10,000	3	\$ 3,333.33
16. Student lab assistants to manage all the above (40 hrs/wk @ \$7/hr x 43 weeks)					\$12,040.00
			ANNUAL TOTAL		\$32,056.67

BUDGET FOR COMPUTER INFORMATION SYSTEMS (CISB) LABS (based on 5 yr / 10 yr replacement plan)

Item	Units	Unit Cost	Estimated Cost	Life Span	Annualized Cost
1. Dell server for Windows 2003 VB.Net development environment local area network	1	\$ 5,000	\$ 5,000	5	\$ 1,000.00
2. Additional software for server named in #1, above			\$ 5,000	5	\$ 1,000.00
3. Client stations for local area network named in #1, above	10	\$ 500	\$ 5,000	5	\$ 1,000.00
4. Software for client stationed named in #3, above	10	\$ 500	\$ 5,000	5	\$ 1,000.00
5. Dell server for Linux C++/C# development environment local area network	1	\$ 5,000	\$ 5,000	5	\$ 1,000.00
6. Additional software for server named in #5, above (no charge for open source sw)			N/A	5	N/A
7. Client stations for local area network named in #5, above	10	\$ 500	\$ 5,000	5	\$ 1,000.00
8. Software for client stations named in #6, above (no charge for open source sw)	10	N/A	N/A	5	N/A
9. Workstations for specialized projects in CISB300 & CISB 400. (these workstations are recycled as the clients in #3 & #4 are replaced.)	20	N/A	N/A	5	N/A
10. Software and components for workstations named in #9, above.	20	\$ 500	\$ 10,000	5	\$ 2,000.00
11. Networked printers for networks and workstations named in # 1, 5 & 9, above.	4	\$ 500	\$ 2,000	5	\$ 400.00
12. Cabling, routers, switches, etc. for networks named in # 1, 5 & 9, above			\$ 5,000	10	\$ 500.00
13. Chairs for 40 clients and 2 servers named in #1, 3, 5, 7 & 9, above	42	\$ 150	\$ 6,300	10	\$ 630.00
14. Microsoft Academic Alliance departmental license, which allows student access to dozens of software products for use in a variety of courses, especially CISB101 which is a required course in the BBA program. As CIS is part of the Business Department, all business students will have access to that same set of products. Hence, CISB101 students pay \$25 fee once for that access for four years.			\$ 800	1	\$ 800.00
15. Server and software to implement SAP Enterprise software to create a realistic corporate-wide database for students to learn in CISB 101 and then use in most other business courses in the core of the BBA program.			\$ 10,000	5	\$ 2,000.00
16. Student lab assistants to manage all the above (30 hrs/wk @ \$7/hr x 43 weeks)					\$ 9,030.00
ANNUAL TOTAL					\$21,360.00

Why CISB 210 should be a required Course in the BBA core:

CISB 210 Fundamentals of Information Systems contains an important knowledge set that Mesa State BBA students are presently missing and for which, therefore, are less well prepared for the business world. CISB 210, rather than a computer literacy and skills course like CISB 101, is considered the introduction to computer information systems. It parallels other principles courses in marketing, accounting, management, finance and economics.

The 2007-08 catalog description for CISB 210 states:

“Exploration of information systems in a business environment. Use of information systems to improve business processes and organizational goals. Introduction to hardware, software, ethical issues, career opportunities, and organizational uses of IS.”

CISB 210 also includes team work and project management using Microsoft’s Project, which are knowledge and skills that students can use in many other classes in the BBA.

The Colorado public colleges/universities that require a course similar to CISB 210 in their business core in addition to requiring a course such as CISB 101 are:

Adams State College	Colorado State U-Ft. Collins	Metro State College
CU-Colorado Springs	U of Northern Colorado	Western State College

The Colorado public colleges/universities that require a course similar to CISB 210 or a theories course like CISB 392 plus a more advanced computer skills course similar to CISB 205 are:

CU-Denver	CU-Boulder
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The Colorado public colleges/universities that require only CISB 101 or a similar course are:

Colorado State U-Pueblo	Mesa State College
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Three alternative strategies to fit CISB 210 into Mesa State’s BBA core:

1. Replace CISB 101 with CISB 210 in the business core and place CISB 101 as a required Applied Studies course in the Gen Ed courses. (This will not be popular across campus.)
2. Add CISB 210 to the business core and keep CISB 101 in the core, using the argument that the 60 hour limit on the BBA needs to expand to 63 due to an increased set of knowledge required by students in the modern business environment. (This argument works best when based on external program accreditation requirements.)
3. Replace CISB 101 in the business core with CISB 210 and adopt the following plan to insure students have the proper levels of computer literacy and personal productivity tools skills.
 - Change the prerequisite to CISB 210 to “demonstrated knowledge of computer literacy and demonstrated skills in personal productivity tools” and include assignments to verify.
 - Work with area high schools to realign their courses to meet CISB 101 standards.
 - Establish a formal test process to measure computer literacy and productivity tools skills.
 - For students who fail selected parts of the test, create three one-credit hour courses in Word/Power Point, Excel, and Access. Include in each course basic computer literacy concepts and functions of the Mesa State campus network.

Each of the three strategies requires additional adjunct faculty to teach CISB 101 or equivalents.

Current and Planned Activities to Encourage Growth in the CIS Program

One of the biggest challenges facing the CIS program is the current small number of student majors and small class sizes in many of our upper division courses. Of course, the pattern of CIS enrollment at Mesa State parallels the well-published pattern in industry nationwide. Informal research has shown that the number of CIS majors may cycle regularly over 10 year periods and that our current low numbers may be the bottom of the current cycle. None-the-less, the CIS faculty recognizes the need to proactively increase current enrollment and majors. The faculty is addressing this issue in the following ways:

Current Activities (underway for over 1 year):

1. Dr. Carpenter developed a PowerPoint presentation to promote IT careers and the CIS major.
2. CIS professors visit local high schools to speak with business and technology teachers, college advisors, and students.
3. MSC advising sessions provide an opportunity for CIS professors to meet and encourage students in a one-on-one setting.
4. CIS professors meet with MSC advisors to help them understand our major and our courses.
5. CIS professors speak to the BUGB 105 Freshman Business Seminar classes to discuss the major and job opportunities.
6. Dr. Snyder is on the Curriculum advisory board for the IT department at Colorado Mountain College to improve the interaction and articulation between students beginning their college course work and computer courses at CMC, who may then move on to enroll at MSC.
7. CISB 101 Business Information Technology enrolls about 150 students per semester who are taught by CIS faculty. The students are introduced to IT careers and also actively recruited by the professors.
8. The AITP club officers actively recruit members. Their activities include:
 - hosting a table at the “Back to School Night” held for Business students at the beginning of each semester
 - hosting a table at the Club Fair held campus wide
 - creating and maintaining a bulletin board outside the CIS office area
 - advertising and holding the Computer Hero’s monthly program for students, faculty and community providing computer assistance and repair
 - participating (and winning awards) in the National Collegiate Conference each year

New Activities (launching now or underway for less than 1 year):

1. The Business department and CIS area are working toward vertical curriculum alignment with high schools, to increase and standardize the computer training undertaken by high school students to facilitate transfer to MSC.
2. CISB 210 Fundamentals of Information Systems will move into the required business curriculum in 2009, replacing CISB 101 as the course taken by all business students. CISB 101 is a hands-on course mainly covering MS Office applications, while CISB 210 introduces students to the major corporate information systems that businesses need to support. As such, CISB 210 is more oriented toward attracting people who find the broad area interesting.
3. The Bachelors of Applied Science in CIS was approved and has its first enrollments in the 2007-2008 academic year. This degree is oriented towards those who have completed an Associate of Applied Science degree and now want to complete a baccalaureate degree. We anticipate a growing number of people entering the major through this avenue. The faculty plan to speak to community colleges to promote this new offering.
4. The CIS faculty created a Business Advisory Board in Spring 2007, made up of IT managers from the Grand Valley. This group can help us advertise our program and may also encourage their employees to attend MSC and complete their IT education.
5. Alternate delivery of courses is under consideration in the Business school as a whole. MSC administration assumes a certain amount of interest by a potential student cohort, and CIS may benefit particularly due to the higher level of comfort with technology experienced by our majors. Of course, such discussions require consideration of the resources available, support for such an extensive new offering, and a true measurement of student interest in alternate delivery classes.
6. Dr. Carpenter intends to apply for a grant or stipend to develop a professionally produced DVD of MSC and the CIS major. The intention would be to mail the DVD to high schools and community colleges in the area.

Appendix G

Faculty Vitae (provided by the department)

Gayla Jo Slauson

Teaching Experience

Over the last seventeen years I have successfully taught a diverse group of lower and upper divisions courses in Business and Computer Information Systems and several courses for other entities. I have effectively taught students ranging from senior Honors Students to freshmen admitted only provisionally. Also, I have taught adults ranging in age from 18 to 80.

Computer Information Systems:

- Business Information Technology
- Introduction to Business Software
- Advanced Business Software
- Theories of Information Systems
- Fundamentals of Information Systems
- Management of Information Systems
- Microcomputer Applications
- Solving Problems using Spreadsheets and Statistical Software

Programming:

- COBOL I and II
- BASIC

Software:

- Access (Database)
- Excel, Lotus 1-2-3 (Spreadsheet)
- Word, Word Perfect (Word Processing)
- PowerPoint (Presentation)

Business:

- Introduction to Business
- Business Communications
- Organizational Behavior
- Business Math
- Principles of Marketing

Other:

- Introduction to Higher Education
- Honors Courses
- Courses for Teachers to earn CE Credits for Mesa County School District
- Leading Edge Seminar Presenter for Small Business Development Center
- Women in Management Course Presenter
- Teacher of Adult Bible Education Courses for local church, also session teacher at two Women's conferences

Teaching Awards

- 1990-2007 Earned "Excellent" ratings for teaching from Department Chair, peers, and other administrators
- 2003 Awarded Wall of Fame Teacher Award by Academic Services at Mesa State College
- 1993 Awarded Outstanding Teacher Recognition Award by Grand Junction Chamber of Commerce
- 1990-2007 Consistently earned high student evaluation ratings
- 1990 Outstanding Future Business Teacher Award, 1st Place Nationally Phi Beta Lambda

Examples of Innovative Techniques Used

- Knowledge bowls
- Cross examination debates
- Drama
- Poetry recitations
- Programming contests
- Decision Support System development
- Field trips and guest speakers
- One-minute speeches
- Who wants to be a Millionaire type games
- Test variety: hands-on, orals
- Structured note taking
- Nanostudies

Gayla Jo Slauson

Leadership Experience

Examples of Elected Positions

2003-2005 Elected by faculty to serve as Faculty Trustee on the Mesa State College Board of Trustees

1998-2005 Elected by departmental faculty to Faculty Senate as Senator

2001-2003 Elected by Faculty Senate to serve as member of CFAC (Faculty advisory group to the Colorado Commission on Higher Education)

2001-2003 Elected by CFAC members to serve as their representative on the GE-25, a statewide group determining how to implement legislation affecting general education requirements

1998-2000 Elected twice by the Faculty Senate to serve as Vice Chair of the Senate

1998-2001 Elected and served as faculty representative to the Office of State Colleges, in 2000-2001 served as voting Faculty trustee on Board

1996-1997 Elected by the committee to be Chair of Faculty Professional Development and Academic Enrichment

2005-2006 Elected by departmental faculty to serve on Promotion/Tenure Committees

Examples of Appointed Positions

2006 Administratively appointed to serve on the Higher Learning Steering Committee for Mesa State College

2002-2003 Administratively appointed to serve as Chair of Mission and Purposes Committee for the North Central Accreditation efforts, assisted in writing report for the Higher Learning Commission

2002-2004 Administratively appointed to serve on the Academic Master Plan Committee

1998-1999 Administratively appointed to serve as a member of Mesa State College's President's Council meeting monthly

1991-1997 Administratively appointed to serve on the Human Relations Council as representative enforcing compliance with diversity regulations such as the American Disabilities Act; assisted in over forty administrative and faculty searches across campus during this time

Examples of Chairperson Positions Held

2006-2007 Chairperson of Scheduling and Faculty Development in Computer Information Systems (CIS) Area in Dept of Business

2005-2006 Chairperson of two Search Committees for Faculty Searches in Dept of Business

1994-2000 Chairperson of the Computer Information Systems Community Advisory Board

Examples of Advisory Positions Held

2006-2007 CIS Curriculum and Advising Coordination Committee

2006-2007 CIS Assessment and Accreditation Committee

2006-2007 CIS Public Relations/Retention and Recruiting Committee

2006-2007 Early Alert Committee, Department of Business

2003-2004 Assisted with New Faculty Orientations

2001-2003 District 51 Partners in Education Technology Committee

1998-2000 Academic Affairs Committee, Office of State Colleges of Colorado

1992-1997 Honors Program Development Committee and then member of Honors Program Advisory Committee

1997 Technology Enhanced Education (TEES) Committee involved in distribution of grant monies based on faculty proposals

Gayla Jo Slauson

Publications

Publications in Books and Journals

Snyder, J., Carpenter, D. and Slauson, G. (2007). MySpace.com – A Social Networking Site and Social Contract Theory. *ISEDJ (Information Systems Education Journal)*, 5(2), January 2, 2006.

McGinnis, D. and Slauson, G. (2003). Advancing Local Degree Programs Using the IS Model Curriculum. *ISEDJ*, 1(37), December 27, 2003.

Slauson, G. and Grabow, C. (2003) Framing Leadership Issues for System Developers, *Current Issues in IT Education*, editor McGill, T., Chapter 10, ISBN 1-931777.

McGinnis, D. and Slauson, G. (2002). Global IT Worker Shortage: Perceived or Real?. *Global Business Trends: Contemporary Readings*, ABA (Academy of Business Administration), pg 71.

Slauson, G. (1997). *Student Study Guide for Computers and Information Processing, Second Edition*. Course Technology. ISBN 0-7600-4922-X.

Meritorious or Best Paper Awards

Snyder, J., Carpenter, D. and Slauson, G. (2006). MySpace.com-A Social Networking Site and Social Contract Theory. *The Proceedings of ISECON 2006 (Information Systems Educators Conference)*, v23(Dallas), ISSN 1542-7382.

Carpenter, D., McGinnis, D., and Slauson, G. (2005). Invalid Predictors of Future Success in IT Jobs. *Proceedings of 47th Annual Fall Conference MPMA (Mountain Management Plains Association)*, Cedar City, Utah. October, 2005.

Additional Publications

Slauson, G., Carpenter, D. and Snyder, J. (2006). Copyright Ethics: Relating to Students at Different Levels of Moral Development. *The Proceedings of ISECON 2006 (Information Systems Educators Conference)*, v23(Dallas), ISSN 1542-7382.

Carpenter, D. McGinnis, D. and Slauson, G. (2006). Motivating and Managing Computer Personnel in the 21st Century. *Proceedings of the 48th Annual Fall Conference MPMA*, Provo, UT., October, 2006.

Slauson, G. (2005). Using a Decision Support System to Teach Fundamental System Concepts. *Proceedings of 16th IRMA (Information Resources Management Association)*, Seattle, May 2005.

Carpenter, D., McGinnis, D. and Slauson, G. (2005). Tying an Organizational Budget to Enterprise Goals: A DSS for Budget Allocation Among Functional Units. *Proceedings of the 47th Annual Fall Conference MPMA*, Cedar City, UT. October 2005.

Carpenter, D., McGinnis, D., and Slauson, G. (2004). In Search of Predictors of Success in IT Jobs. *Proceedings of the Decision Sciences Institute*, Boston, November 2004.

Slauson, G. and Carpenter, D. (2004), Pedagogical Justification for Assigning a DSS Project in a Fundamentals of IS Course. *Proceedings MPMA*, Grand Junction, CO. October 2004.

Slauson, G. and Grabow, C. (2002). Systems Analysts Emerge as Leaders: Framing through IS in Contemporary Organizations. *Issues and Trends of Information Technology Management in Contemporary Organizations (proceedings for IRMA)*, May, 2002.

Slauson, G. (2002). Leading through Email; an Extension of Framing. *44th MPMA Conference Proceedings*, pg. 175.

Slauson, G. and McGinnis, D. (2002). An Information Systems Course Model that Emphasizes Non-Technical Skills. *ISECON Proceedings*, Cincinnati, OH, November 2002.

McGinnis, D., Grabow, C. and Slauson, G. (2000). Developing a New Major in Information Systems in a Four Year Program. *IRMA Proceedings*, Anchorage, AK, May, 2000.

Slauson, G. (1999). Teaching Ethics, *Compilation of papers for 1999 State Colleges Faculty Symposium*, Crested Butte, CO.

Slauson, G. and Slauson, M. (1994). Using Field Trips and Guest Speakers to Enhance Classes. *MPMA Conference Proceedings*, October, 1994.

Slauson, G. (1997). Test Bank for *Computers and Information Processing, 2nd ed.*, Fuller & Manning, Course Technology.

Gayla Jo Slauson

Education, Work, and Experience

Education

MBA (Masters of Business Administration), 1992,
Colorado State University at Pueblo (formerly Univ.
of So. Colorado, GPA 4.0.

BBA (Bachelors of Business Administration)
Emphasis in Computer Information Systems, 1990,
Mesa State College, Grand Junction, Colorado:
OUTSTANDING GRADUATE AWARD FOR
HIGHEST GPA – 3.97.

Additional undergraduate and graduate level courses
taken at University of Colorado at Denver. Also
attended Ft. Lewis College (Durango, CO) and
Colorado State University (Ft. Collins, CO).

Certification: CCP (Certified Computing
Professional).

Sampling of Awards earned/positions held as undergraduate:

First Place- Outstanding Future Business Teacher,
National Phi Beta Lambda Award, Washington, DC,
Summer, 1990.

Wall Street Journal Award, 1990.

Who's Who Among American College and
University Students (MSC) and
National Deans List (At UCD)

Alpha Chi Honor Society

Vice President of MSC Chapter of DPMA-Data
Processing Management Association (currently
AITP)

Tutor Trainer and Mentor for Academic Services

Textbook Reviewer

Haag (2003). *Management and Information Systems
for the Information Age, 4th edition*, McGraw Hill.

McKeown, P. (2000). *Information Technology and
the Networked Economy*, Harcourt.

Parker, C. (1998). *Understanding Computers Today
& Tomorrow, 8th edition*. Dryden.

Also reviewed numerous papers for conferences.

Work

2000 to Present
Associate Professor of Computer Information
Systems, Department of Business, Mesa State
College, Grand Junction, Colorado

1996 to 2000
Assistant Professor of Computer Information
Systems, Department of Accounting and Information
Technology, MSC In 1998 Awarded Tenure

1993 to 1996
Instructor of Information Technology, Department of
Accounting and Information Technology, MSC

1990 to 1993
Full-Time Lecturer in Computer Information
Systems, MSC.

Prior Work experience included work as accounts
receivables clerk for Allen Plumbing and Heating (Ft.
Collins, CO), receptionist and bookkeeper for
Durango Ornamental Iron (Durango, CO), Cashier
and Sales Clerk for Yellow Front Store (Durango,
CO) and receptionist for Bureau of Reclamation
(Montrose, CO), as well as serving as full-time
mother and homemaker for several years.

Speaking:

Leading Edge II Seminar for Small Business
Development Center, March 24, 1993, Grand
Junction, CO.

Lay-Minister/Speaker at variety of events and
services for several Methodist churches.

AIMS (Academic Improvement Series) lectures to
motivate students for several years in 1990s.

Presentations on Identity Theft for Senior Center and
other senior groups.

Panel Discussant:

Encouraging Girls to Consider Computing Careers,
(ISECON 2001)
Innovations in Marketing Classes (Western
Marketing Educators Conference), San Diego, CA

Editing: Assistant Editor, IBSCA (International
Business Schools Computing Association) *IBS
Computing News*, Fall, 1993.

Gayla Jo Slauson Experience (continued)

**Awarded Outstanding Service - Faculty Award ,
Mesa State College 2001**

Committees:

Numerous Search Committees, Tenure and
Promotion Committees

District 51 Partners in Education Technology
Committee, 2001-2003.

Budget Task Force Allocation Committee

Reader for honors thesis for two MBA students

Panelist at New Faculty Orientation Meetings for
several years at MSC

Honors Program Development Committee, 1992
through 1997, MSC

Scheduling and Faculty Development for CIS, Chair

CIS Curriculum and Advising Coordination
Committee

CIS Assessment and Accreditation Committee

CIS Public Relations/Retention and Recruiting
Committee

Advisory Committee – CIS

Presenter:

Workshops for Administrative Assistants at Adams
Mark Hotel, 2003

Summer Computing Courses for Teacher
Recertification, District 51, 2002 and 2003

Rocky Mtn HMO training sessions for employees

EEE middle school students – programming

Gateway High School Graduation Speaker, 1995.

Two Rivers Toastmasters, Sergeant at Arms 1992

Chamber of Commerce Business Startup Series, 1991

Recruiting presentations at area high schools:
Olathe, Delta, Montrose, DeBeque

Academic Excellence Reception Keynote Address,
February 25, 2004.

Community Service:

Judged High School Debate and forensics
competitions, various years

Worked with Resource Center as Mentor for young
mothers.

Assisted with leading LiveWell community kickoff
walks, Mesa County

Assisted at Worldwide Lessons in Leadership
Conference cosponsored by MSC and *Fortune
Magazine* in November 1998.

Keynote co-speaker, AITP Meeting in Denver, “IT
Career Success” and “Does Your IT Job Motivate
You?”

Presentation: “Got Ethics” , PBL workshop, State
Leadership Conference, Saturday, April 1, 2006 in
Grand Junction, Colorado

Adult education classes and presentations for
Crossroads United Methodist Church (ongoing)

Women’s Conference speaker – Pimentel, Dominican
Republic on Living the Good Life, June, 2006

Facilitator – Workshops for CIS/CS faculty to
collaborate for Office of State Colleges

Student Organization Sponsor:

PBL (Phi Beta Lambda) – for business students, 2
years

Bible Basics (1 year)

Campus Bible Study (3 years)

Curriculum Vitae

DONALD A. CARPENTER

ACADEMIC DEGREES

D.Div. American Institute of Holistic Theology Birmingham, Alabama	2004 General Theology
Ph.D. University of Nebraska Lincoln, Nebraska	1992 Management Information Systems, Management Science, Computer Science, Production & Operations Management
M.B.A. University of Colorado Colorado Springs	1984 Information Systems (post-MBA study, Marketing, 1984-85)
B.S. Kearney (NE) State College	1971 Business Administration

PROFESSIONAL EXPERIENCE

- 2003-Present Mesa State College, Grand Junction, CO
Associate Professor of Computer Information Systems
- 2000-2003 University of Nebraska at Kearney
Professor of Management Information Systems
Director, Global Sources Information Technology Program
- 1985-2000 University of Nebraska at Kearney
Professor of Computer Science & Information Systems
Chair, Department of Computer Science & Information Systems
- 1980-1985 Pikes Peak Community College, Colorado Springs
Instructor of Computer Information Technology
- 1984-1985 University of Colorado – Colorado Springs
Part time “honorarium” faculty for Introduction to Marketing
- 1982-1983 Lundy Electronics (of Glenhead, NY) (during leave from PPCC)
Mountain States District Manager, based in Colorado Springs
- 1972-1980 Burroughs Corporation (now UNISYS), Colorado Springs
Territory Manager, Zone Sales Manager, Account Manager
- 1969-1972 RGIS Inventory Specialists, Kearney, Lincoln, Kansas City
Crew Member/Supervisor Kearney & Lincoln (part time)
District Manager Kansas City (full time)

CONTACT AND PERSONAL INFORMATION:

Office: Department of Business
Mesa State College
Room 105, Houston Hall
1100 North Avenue
Grand Junction, Colorado 81501-3122
Phone: 970-248-1580 Email: dcarpent@mesastate.edu FAX: 970-248-1730
Personal: US citizen, born 1/22/49 in Lexington, NE; Widowed, 4 children.

PRINCIPAL ONGOING COLLEGIATE ACTIVITIES:

Member, Mesa State College Faculty Senate's Curriculum Committee.
Member, Mesa State College Faculty Senate's Salary and Benefits Committee.
Member, Mesa State College Human Resource Office's Benefits Committee.
Member, Mesa State College Business Department's M.B.A. Committee.
Coordinator, MSC Business Department's assessment data collection & analysis.
Chair, MSC Computer Information Systems Assessment & Accreditation Committee.
Participant on MSC's Computer Information Systems program's teams for faculty search, continuous improvement, ABET accreditation, lab management, curriculum changes, program/course assessment, program review, etc.

PROFESSIONAL AND ACADEMIC ASSOCIATION MEMBERSHIPS:

Mountain Plains Management Association, Board of Directors, President (06-08), presenter, discussant, conference organizer (since 2003)
Decision Sciences Institute, member, reviewer, discussant (since 1992)
Western & Midwest Decision Sciences Institute, member, presenter, discussant
Association for Information Technology Professionals (formerly DPMA) (since 1972)
Association for Computing Machinery, former member, presenter (1985-2003)

PRINCIPAL ONGOING RESEARCH:

Exploration of relationships between meaningfulness and motivation among information technology workers and general workforce. 2002-present.
Information requirements determination, enterprise information modeling, and General Systems Theory study of common enterprise information needs. 1972-present.

COURSES TAUGHT:

CISB at Mesa State College:

100 Basic Computer Skills
101 Business Information Technology
(computer literacy/skills)
110 COBOL Programming
210 Fundamentals of Info Systems
331 Advanced Business Programming
392 Theories and Practice in CIS
400 Data Comm & Network Management
442 Systems Analysis and Design
451 Database Administration
460 Electronic Commerce Systems
471 Advanced Info Systems (capstone)
491 Directed Readings
493 Independent Study
496 Selected Topics
500 Management of Info Systems (MBA)

MARK at Mesa State College

335 Sales & Sales Management
350 Marketing Research
496 Selected Topics
500 Marketing Strategy
520 (BUGB) Selected Topics

Elsewhere (unduplicated):

Hardware, Software & Architecture
Operating Systems
AS/400 Operations
FORTRAN Programming
BASIC Programming
Assembler Programming
RPG IV Programming
Computer Simulation
Computer Assisted Instruction
Computer Managed Instruction
Principles of Marketing

SCHOLARSHIP

INVITED CHAPTERS:

- Schulz, P. F. & Carpenter, D.A. (2008, forthcoming). Talent Management, Performance Management and the Management of Organizational Knowledge: The Case for a Congruent Relationship, in Vaiman, V., & Vance, C. (2008). *Smart Talent Management*.
- Schulz, P. F. & Carpenter, D.A. (2008, forthcoming). Critical Considerations of Talent Management and Knowledge Management for effective HR Planning, in Vaiman, V., & Vance, C. (2008). *Smart Talent Management*.
- Carpenter, D. A. & Agrawal, V.K. (2007). Why, When and What to Outsource, in Schneiderjans, M.J., et. al. (2007) *Outsourcing Management Information Systems*. Idea Group Publishing. 17-42.
- Agrawal, V.K. & Carpenter, D. A. (2007). Planning for Information Systems Outsourcing, in Schneiderjans, M.J., et. al. (2007) *Outsourcing Management Information Systems*. Idea Group Publishing. 43-62.
- Carpenter, D.A., and Schniederjans, M. (1994). Total quality management of multimedia development projects. In Reisman, S., Ed. *Multimedia Computing: Preparing for the 21st Century*. Idea Group Publishing. 195-224.

REFEREED JOURNALS ARTICLES:

- Snyder, J., Carpenter, D.A., Slauson, G.J. (2007). MySpace.com – A Social Networking Site and a Social Contract Theory. *Information Systems Education Journal*, 5 (2).
- Carpenter, D.A. (2003). Meaningful information systems internships. *Journal of Information Systems Education*, 14 (2). 201-210.
- Carpenter, D.A. (2003). Reinforced learning in the data communications course using a teleprocessing line speed decision support system. *Journal of Information Systems Education*, 14 (1). 51-58.
- Schniederjans, M.J., & Carpenter, D.A. (1996). A heuristic job scheduling decision support system: A case study. *The International Journal of Decision Support Systems*, 18. 159-166. **ANBAR International Excellence Award.**
- Carpenter, D.A. (1994). Refining database design: Teaching with analogies. *Journal of Computer Science Education*, 8(2). 20-21.
- Carpenter, D.A., Anders, J. & Anderson, A. (1993). Influence of Myers-Briggs type and preference for data presentation format. *Journal of Computer Information Systems*, 33(4). 85-90.
- Carpenter, D.A. (1992). Are we teaching database design properly? *Journal of Computer Information Systems*, 33(1). 9-12.

BOOKS:

- Carpenter, D.A. (1996, 1993, 1988, 1986). *Managing Teleprocessing Systems*. Kearney, NE: Antelope Bookstore. (600 page text book was originally under contract with Prentice-Hall, but was withdrawn, published locally, sold at cost to UNK students.)
- Carpenter, D.A. (1994). *Casebook for McFadden, F., & Hoffer, J. (1994), Modern Database Management, 4th ed.* Redwood City, CA: Benjamin-Cummings Publishing.

SCHOLARSHIP (continued)

BOOKS (continued):

Carpenter, D.A. (1993). Development of an Information Requirements Determination Methodology: Utilization of Normative Analysis from a Universal Enterprise Information Model. Ann Arbor: University Microfilms International Dissertation Service.

CONFERENCE AND PROCEEDINGS PAPERS:

Carpenter, D. A., Slauson, G.J., Snyder, J., & Winniford, M.A. (2007, forthcoming) Motivating and managing computer personnel in the 21st century: Expanding the pilot study. *Proceedings of Mountain Plains Management Conference*. [Kearney, NE, Oct 2007].

Bridge, M. K. & Carpenter, D. A. (2007, forthcoming). Factors contributing to student success: a preliminary analysis. *Proceedings of Mountain Plains Management Conference*. [Kearney, NE, Oct 2007].

Agrawal, Vipin K., Carpenter, D.A. & Agrawal, Vijay K. (2007, forthcoming). Measuring radical change in systems analysis and design course. *Proceedings of Mountain Plains Management Conference*. [Kearney, NE, Oct 2007].

Agrawal, Vipin K., Agrawal, Vijay K. & Carpenter, D.A. (2007, forthcoming). The Effects of Incremental Change in the Intro to MIS Course. *Proceedings of Mountain Plains Management Conference*. [Kearney, NE, Oct 2007].

Carpenter, D. A. & Bridge, M.K. (2007). Comprehensive longitudinal assessment of a business department. *Proceedings of Western Decision Science Conference* [Denver, April 2007].

Snyder, J., Carpenter, D. A., & Slauson, G. J. (2006). MySpace.com - A Social Networking Site and Social Contract Theory. *Proceedings of the Information Systems Educator Conference (ISECON)*. [Dallas, Nov 2006]. **Selected for Meritorious Paper Award.**

Slauson, G. J., Carpenter, D. A., & Snyder, J. (2006). Copyright Ethics: Relating to Students at Different Levels of Moral Development. *Proceedings of the Information Systems Educator Conference (ISECON)*. [Dallas, Nov 2006].

Carpenter, D. A., McGinnis, D., & Slauson, G.J. (2006) Motivating and Managing Computer Personnel in the 21st Century: A Pilot Study. *Proceedings of Mountain Plains Management Conference*. [Oren, UT, Oct 2006].

Carpenter, D. A. & Bridge, M. (2006). Combining Assessment and Departmental Planning: Preliminary Stage of A Longitudinal Study. *Proceedings of Mountain Plains Management Conference*. [Oren, UT, Oct 2006].

Carpenter, D. A. & Kizzier, D. M. (2006). Metaphors gone wild: The illusive machine cycle. *Proceedings of International Association for Computer Information Systems (AICIS)*. [Reno, October 2006].

Carpenter, D.A. & Agrawal, V.K (2006). Which information systems functions should be outsourced? *Proceedings of Midwest Decision Science Institute*. [Indianapolis, April 2006].

Agrawal, V.K. & Carpenter, D.A. (2006). The future of information systems off-shore outsourcing. *Proceedings of Midwest Decision Science Institute*. [Indianapolis, April 2006].

Carpenter, D.A. & Agrawal, V.K (2006). Factors influencing growth of IT outsourcing. *Proceedings of the Western Decision Science Institute Annual Conference*. (Table topic). [Hawaii, April 2006].

SCHOLARSHIP (continued)

CONFERENCE AND PROCEEDINGS PAPERS:

- Agrawal, V.K. & Carpenter, D.A. (2006). Outsourcing IT processes: Present and futuristic views. *Proceedings of the Western Decision Science Institute Annual Conference*. (Table topic) [Hawaii, Apr 2006].
- Carpenter, D.A., McGinnis, D.R. & Slauson, G.J. (2005). Invalid predictors of future success in IT jobs. *Proceedings of 47th Annual Conference Mountain Plains Management Association*. [Cedar City, UT, Oct 2005.] **Selected as Best Paper in CIS Track.**
- Carpenter, D.A., McGinnis, D.R., & Slauson, G.J. (2005). Tying an operational budget to enterprise goals: A DSS for budget allocation among functional units. *Proceedings of 47th Annual Conference Mountain Plains Management Association*. [Cedar City, UT, Oct 2005.]
- Carpenter, D.A. & Agrawal, V.K. (2005). IT-enabled transformation of business schools' core curriculum: A longitudinal study on radical change. *Proceedings of the 2005 Annual Meeting of Midwest Decision Science Institute*. [Toledo, Apr. 05.] **Iota Alpha Delta Innovation Education Best Paper Award.**
- Agrawal, V.K. & Carpenter, D.A. (2005). IT-enabled transformation of business schools' core curriculum: A longitudinal study on incremental change. *Proceedings of 2005 Annual Meeting of Midwest Decision Science Institute*. [Toledo, Apr. 05.]
- Carpenter, D.A., McGinnis, D.R. & Slauson, G.J. (2004). In search of predictors of success in IT jobs. *Proceedings of the Decision Science Institute Annual Conference*. [Boston, November 2004].
- Carpenter, D.A. (2004). Fitting Logotherapy into motivational theories: New opportunities for research and consultation. *Proceedings of the 46th Annual Fall Conference Mountain Plains Management Association*. [Grand Junction, CO, October 2004.]
- Slauson, G.J. & Carpenter, D.A. (2004). Pedagogical justification for assigning a decision support system project in a fundamentals of information systems course. *Proceedings, 46th Annual Conference Mountain Plains Mgmt Assoc.* [Grand Junction, Oct 2004.]
- Agrawal, V.K. & Carpenter, D.A. (2004). IT-enabled transformation of business schools' core curriculum: Development of a product model. *Proceedings of 46th Annual Fall Conference Mountain Plains Management Association*. [Grand Junction, Oct. 2004.]
- McGinnis, D.R. & Carpenter, D.A. (2004). Allocating operating budgets among academic units: Software solutions using goal programming. *Proceedings of Academy of Business Administration 2004 National Conference*. [Las Vegas, March 2004].
- Carpenter, D.A., & Agrawal, V.K. (2004). Integrating information technology throughout core business curriculum: Utilizing a universal database to model pervasive computing in modern business. *Proceedings of the Western Decision Science Institute Annual Conference*. [Manzanilla, Mexico, April 2004].
- Carpenter, D.A. (2004). Connecting Logotherapy with motivation theories: A research and consultation agenda. *Proceedings of Western Decision Science Institute Annual Conference*. (Abstract). [Manzanilla, April 04].
- Carpenter, D.A. (2003). Connecting Logotherapy with motivational theories: Plan for research & consulting regarding meaningfulness. *Fourteenth World Congress on Logotherapy*. [Dallas, June 2003]
- Carpenter, D.A. (2003). Meaningful computer skills assignments: A personal weight control decision support system. *Proceedings of Midwest Decision Sciences Institute Annual Conference*. [Cincinnati, Apr 2003].

SCHOLARSHIP (continued)

CONFERENCE AND PROCEEDINGS PAPERS (continued):

- Carpenter, D.A. (2002). Creating and Assessing a Core Business Curriculum Centered on Information Technology. *Proceedings of Western Decision Science Institute Annual Conference*. [Las Vegas, April 2002.]
- Carpenter, D.A. (2001). Database Case Studies in Every Business Course. *Proceedings of Decision Sciences Institute Annual Conference*. 1313. [San Francisco, November 2001.]
- Carpenter, D.A. (2001). Can Cooperative Education be a Key to Rural Region IT Brain Drain? *Proceedings of the Midwest Decision Sciences Institute Annual Conference*. [Dearborn, MI, April 2001.]
- Carpenter, D.A. (2001). Reinforcing Learning in the Data Communications Course: Using a Teleprocessing Line Speed Decision Support System. *Proceedings of 34th Annual Midwest Instruction and Computing Symposium*. [Waterloo, IA, April 2001.]
- Schniederjans, M.J., & Carpenter, D.A. (1994). A case study of a heuristic-based DSS. *Proceedings of the Fifth Annual Production and Operations Management Society*. (Program abstract, p.5). [Washington, D.C., October 1994].
- Carpenter, D.A. (1993). Improving the quality of teleprocessing line speed decisions. *Proceedings of the Twenty-Fourth Annual Meeting of the Midwest Decision Sciences Institute*, 24. 74-76. [Lansing, May 1993.]
- Carpenter, D.A., Hough-Feldman, A.E., & Gilpin, T.L. (1993). Presentation graphics in pedagogical materials. *Proceedings of International Association for Information Management 8th Annual Conference*. 253-263. [Orlando, December 1993.]
- Carpenter, D.A. (1992). A comprehensive universal enterprise information model. *Proceedings of the Twenty-Third Annual Meeting of the Midwest Decision Sciences Institute*, 23. 88-90. [Kansas City, May 1992.]
- Carpenter, D.A., Anders, J. & Anderson, A. (1992). Myers-Briggs type and preference for tabular versus graphical data. *Proceedings of the Twenty-Third Annual Meeting of the Midwest Decision Sciences Institute*, 23. 105-107. [Kansas City, May 1992.]
- Carpenter, D.A. (1992). A queuing-based model for support of multi-user teleprocessing systems line speed decisions. *Proceedings of 20th Annual Computer Science Conference of Association for Computing Machinery*, 20. 407-414. [Kansas City, Mar 92.]
- Carpenter, D.A., & Digman, L.A. (1991). A goal programming model for allocating operating budgets among academic departments. *Proceedings of Twenty-Second Annual Meeting of Midwest Decision Sciences Institute*, 22. 154-156. [Indianapolis, May 91.]

SCHOLARSHIP (continued)

TRAINING VIDEOS:

- Jussel, M.R. and Carpenter, D.A. (1997). Creators and consultants for *Focus on Careers in Computer Technology*. An instructional video produced by Nebraska Educational Television Consortium for Higher Education (NETCHE).
- Carpenter, D.A. & Jussel, M.R. (1995). Creators and consultants for *Making Your Team Work*. An instructional video produced by Nebraska Educational Television Consortium for Higher Education (NETCHE).
- Jussel, M.R. and Carpenter, D.A. (1993). Creators and consultants for *Problem Solving in the Information Age*. An instructional video produced by Nebraska Educational Television Consortium for Higher Education (NETCHE).

NEWSPAPER AND NEWSLETTER ARTICLES IN DISCIPLINE:

- Carpenter, D.A. (2007). Curricular curios? Or what's happened since I graduated. *MSC Computer Information Systems Newsletter, 1* (1). 3.
- Carpenter, D.A. (2007). Proving our quality and how you can help. *MSC Computer Information Systems Newsletter, 1* (1). 3.
- Carpenter, D.A. (2006). Phishing, pharming, and spoofing: Businesses can fall prey to e-scams, too. *MSC Entrepreneurial Business Institute's EBI EconoBiz Newsletter 2* (4).
- Carpenter, D.A. (2005, Feb. 17). Computer Technology Training Plays Critical Role at Mesa State. *Grand Junction Free Press*. 4.
- Carpenter, D.A. (2005, Feb. 7). Technology Programs, Degrees Flourish at Mesa State College. *Grand Junction Daily Sentinel*. 4A.
- Carpenter, D.A. (1995, March 2). Information superhighway still bumpy. *Kearney Hub*. 4A.

STUDENT MANUALS:

- Carpenter, D. A. (1991). Student Lab Manual for SQL and SQL/DS-ISQL. For Database Systems class. UNK.
- Carpenter, D. A. (1991). Preparing Students for College Computing: Answers to Common Questions. UNK.

MISCELLANEOUS SCHOLARLY WORKS:

- Carpenter, D.A. (1992). Using a PC decision support system to demystify teleprocessing line speed calculations. In *Masters of Innovation IV Abstracts of Entries*. (Chicago: Zenith Data Systems). 21.
- Carpenter, D.A. (1992). Streamlining information requirements determination using a universal enterprise information structure. Doctoral Dissertation Competition of the International Conference on Information Systems Annual Meeting. [Dallas, Dec 1992.]

SCHOLARSHIP (continued)

DECISION SUPPORT SYSTEMS (COMPUTER SOFTWARE):

Teleprocessing Line Speed Decision Support System, 1992, 2001, 2003.

DSS for determining the proper line speed for multi-user teleprocessing systems. Incorporates elaborate queuing formula as opposed to the typically-used, overly-simplistic line calculation approach. Written in Paradox under MS/DOS; then in MS Excel and MS Access.

Manufacturing Employee Job Assigner, 1992.

DSS for assigning employees to manufacturing jobs using a heuristic to deal with extensive ergonomic constraints; developed using Paradox under MS/DOS for an electrical components manufacturer.

Job Sequence Determiner, 1991.

DSS for determining best sequence for a set of production jobs; created in 1988 for Enable 3.0 spreadsheet extensively utilizing macro command strings; runs either user-determined set of jobs or randomly generates a simulated job mix based on mean job characteristics supplied by user; explores random, first come first served, earliest due date, shortest processing time, & critical ratio rules to determine best fit; logs results for multiple runs; generates statistics on individual, mean and variance of job lateness; produces extensive graphics.

Strategic Acquisition Manager, 1991.

DSS for evaluating candidate firms for corporate takeover/merger; written in BASIC for MS/DOS systems; utilizes a zero-one goal programming model developed by Marc Schniederjans, U of Nebraska-Lincoln.

Personal Body Weight Controller, 1990, 2003, 2004.

DSS for determining the proper mix of exercise and caloric intake to reach target weight loss (or gain) within a specified time frame; considers the impact of age and gender on the metabolism; written in Enable spreadsheet; rewritten in MS Excel; then MS Access.

Class Performance Analyzer, 1990, 1995, 2000, 2003.

DSS for analyzing student and course grade performance; allows for what-if analysis based on projected changes to the grading scale; produces hard-copy output as a substitute for the classical grade book; written originally for Visicalc in 1981; re-written and enhanced in 1986 for Lotus-compatible spreadsheet packages; re-written and enhanced in 1986 for Lotus-compatible spreadsheet packages.

Academic Planning System, 1989, 2004.

DSS for considering & weighing budget distribution options among academic departments; utilizes zero-one goal programming; based on MicroManager software for MS/DOS systems; rewritten using Excel.

Academic Department Review Supporter, 1987.

DSS for managing, analyzing and reporting data pertaining to course enrollments, major and graduate counts; produces extensive graphics; written for Lotus-compatible spreadsheet packages.

Student Evaluation of Faculty Analyzer, 1985.

DSS for comparing and graphing the results of evaluations of multiple instructors, multiple semesters, and multiple courses; written for Lotus-compatible spreadsheet packages.

SCHOLARSHIP (continued)

RESEARCH AND MANUSCRIPTS IN PROCESS:

Goal Programming Theme

Carpenter, D.A., Slauson, G.J., McGinnis, D.R. (200?, possible (waiting for administrative permission to proceed)). Retrofitting goal programming to previous years departmental budgets. Intent: conference paper. Intent: conference paper, then journal article.

Predictors of Future Success in IT Jobs Theme

Carpenter, D.A., & Slauson, G.J. Snyder, J., Winniford, M. (2008, intended). Continuing search for predictors of future success in IT jobs. Intended as conference paper, then journal article.

Meaningfulness Theme

Carpenter, D.A. (2008, intended). Use of PIL in determining future job success. Logotherapy Congress paper.

Assessment Theme

Carpenter, D. A. & Bridge, M. (2008, in process). Planning for longitudinal assessment. Intended for Mountain Plains or other fall conference.

Infusing IT into the Business Curriculum and Outsourcing Theme

Agrawal, V.K. & Carpenter, D.A. (2008, in review). Use of a change management project model to infuse information technology into the core business curriculum: The demise of a well-managed project. *The Journal of Business Inquiry: Research, Education, & Application*.

Spirituality Theme

Smith, L., & Carpenter, D. (2008, in reconsideration). Linking science and spirituality by reexamining free will versus predestination. *Science and Spirit*.

Carpenter, D. (2008, projected). Argument for ultra-pluralism of religions. Intent: conference paper, journal article.

Novels

Carpenter, D. A. (2007, projected). *Voyages of Angels*. Under review.

Carpenter, D.A. (2007, projected). *Beth*. In writing stage.

Carpenter, D. A. (2007, projected). *Reporter's Notepad*. Under development.

SCHOLARSHIP (continued)

INVOLVEMENT WITH STUDENT RESEARCH:

Faculty Mentor to Juliana Munoz . (2005). *Extreme Programming*. **Second place in student paper competition at AITP's National Collegiate Computer Conference**. [Atlanta, April 2005].

Faculty Mentor to Katrina MacLeod. (2004). Should governments be allowed to tax electronic commerce transactions. *Proceedings of Proceedings of the 46th Annual Fall Conference Mountain Plains Management Association*. [Grand Junction, CO, October 2004.] **Winner of Best Student Paper competition**.

Faculty Mentor to Karen Etter. (2004). Should Internet filtering be used in America's libraries? *Proceedings of 46th Annual Fall Conference Mountain Plains Management Association*. [Grand Junction, CO, October 2004.]

Faculty Mentor to Janice Danforth. (2004). Should marketers adhere to the CAN-SPAM Act of 2003? *Proceedings of 46th Annual Fall Conference Mountain Plains Management Association*. [Grand Junction, Oct 2004.]

Faculty Mentor to Mary Classen, "Exploring the Relationship Between Personality Indicators and Political Party Preference, **1st Place in Professional/Applied Sciences division of UNK Student Research Day 1999**.

Helped students refine and published articles based on student research papers. See: Carpenter, Anderson & Anderson and Carpenter, Hough-Feldman & Gilpin, in list of publications on previous pages herein.

SUCCESSFUL GRANTSMANSHIP ACTIVITIES:

Sep 00 – May 03 Managed donation from UNK alumnus for Global Sources Program. \$200,000 per yr for 5 yrs.

Apr 95 NU Foundation for CSIS CASE/UNIX student computer lab. Result: \$32,000 + \$50,000 from UNK CNSS.

Jan 95 UNK Academic Computing Committee Grant request. Result: \$850 for CSIS remote course delivery.

Jun 93 Request to Central Point Corporation. Result: \$2000 anti-virus software donation.

Apr 90 Proposal to KSC for improving CSIS faculty computing. Result: \$30,000 for multimedia computer.

Sep 89 KSC request for a UNIX computer for CSIS. Result: \$25,000 from AT&T, Nebr Dept of Ed, & KSC.

Apr 89 Request to Southern Computing Systems. Result: \$2000 KeyEntry3 software donation.

Jul 87 Request to Information Technology, Inc. Result: \$8400 Excelerator software donation.

Jun 86 Request to AutoDesk, Inc. Result: \$3000 AutoCAD software donation.

Jun 85 Pikes Peak Community College external request. Result: \$150,000 computer from Hewlett-Packard.

Mar 82 Pikes Peak Community College external request. Result: \$80,000 computer, Digital Equipment Corp.

May 81 Pikes Peak Community College Faculty Improvement Grant. Result: \$600 for classroom microcomputer.

SCHOLARSHIP (continued)

COMPETITIVELY SELECTED PRESENTATIONS:

See "Conference and Proceedings Papers," above.

INVITED PRESENTATIONS:

- Oct 2005 "Predictors of Future Success in IT Jobs." Workshop and after-dinner presentation. Mile High Chapter of Association of Information Technology Professionals (AITP). Denver.
- Oct 2004 Master of Ceremonies, banquet at Mountain Plains Management Assoc. Annual Meeting, Grand Junction.
- Jun 2003 "IS Legal, Ethical and Personnel Issues." Week of lectures. Rostock University. Rostock, Germany.
- Dec 2002 "Computer Security." Future Problem Solving Seminar sponsored by ESU #11, Holdrege.
- Oct 2001 "Survey of Local Web Sites." Global Sources E-Commerce Symposium. Kearney Chamber of Commerce.
- Mar 01, 02 "Web Genealogy." Senior Citizens Heads-Up Conferences. UNK.
- Nov 1999 "Information Systems Assessment." City Manager, Council, Department Heads. City of Kearney, NE.
- Nov 1999 Interviewed regarding Y2K problems and predictions on KGFW Radio's Talk of the Town.
- Feb 1999 "Using WWW for Student Interaction in Satellite Courses." 1999 Annual Conference of Adult and Continuing Education Association, Grand Island.
- Dec 1998 "Computer Error." Future Problem Solving Seminar sponsored by ESU #11, Holdrege.
- Nov 1998 "Information Systems Planning." City Manager, Council Department Heads. City of Kearney, NE.
- Oct 1998 "WWW & HTTP: Planning an IS Infrastructure." Nebraska Panhandle Economic Development Council.
- Apr 1998 "Focus on Computer Technology Careers." Infotec Midwest Information Technology Expo and Conference. Sponsored by Aksarban IITP. Omaha.
- Feb 1998 "Making Your Team Work." 1998 Conference of Adult and Continuing Education Association, Kearney.
- May 1996 Panel presentation on distance education to UNK Chancellor's Advisory Committee.
- Oct 1995 "Try Teaching Database This Way." 4th Nebraska Secondary Computer Studies Educators Forum. University of Nebraska at Kearney.
- May 1995 Grant proposal presentation to University of Nebraska Foundation Board of Directors.
- Apr 1995 Presentation on Instructional Telecommunications to University of Nebraska Board of Regents.
- Oct 92-99 Emcee at each CSIS Nebraska Secondary School Computer Studies Forum and Programming Contest.
- Dec 1994 "Information Structures to Support Scholarly Research: A General Systems Theory Approach." Arts and Sciences Luncheon Research Colloquium at the University of Nebraska at Kearney.

SCHOLARSHIP (continued)

INVITED PRESENTATIONS (continued):

- Oct 1994 Panel Moderator, Internet Lesson Plans by Educational Technology Masters Degree Students.
3rd Nebraska Secondary School Computer Studies Forum. U of Nebraska at Kearney.
- Aug 1994 "The Computer as an Instructional Tool: Evaluating, Authoring and Using CAI Software." Elementary
Teacher In-Service Training Session. Beaver Valley Schools, Danbury, NE.
- Nov 1993 "Preparing Secondary Students for College Computing / Are We Teaching Database Properly?" North
Central Kansas Computer Teachers Conference. Educational Service Center, Concordia.
- Oct 1993 "Teaching Introduction to Computer Science Using Multimedia Presentations." Second Nebraska
Secondary Computer Studies Educators Forum. U of Nebraska at Kearney.
- Oct 1993 Panel Moderator, Multimedia Projects of Educational Technology Masters Degree Students.
2nd Nebraska Secondary School Computer Studies Forum. U of Nebraska at Kearney.
- Sep 1993 Panel Member, Career Awareness Week, sponsored by Career Services, UNK.
- Oct 1992 "Computer Fundamentals in Law Enforcement." Forty-first Annual Convention of Police Officer's
Association of Nebraska. Grand Island.
- Oct 1992 "Preparing Students for College Computing" & "Teaching 4GL Programming." 1st Nebraska Secondary
Computer Studies Educators Forum. U of Nebraska at Kearney.
- Nov 1991 Session Chair, Statistical & Quant Methods Track Decision Sciences Institute Annual Meeting.
- Nov 1991 "What Qualifies as Research in Computer Information Systems?" Faculty Development Colloquium,
Dept of Computer Science & Information Systems at UNK.
- Oct 1991 "A Goal Programming Model for Budget Allocations Among Academic Departments." Arts and Sciences
Luncheon Research Colloquium at the University of Nebraska at Kearney.
- Apr 1991 "Preparing Secondary Students for College Computing." Annual Conference of the Nebraska
Educational Technology Association. Omaha.
- May 1990 "Use of Spreadsheet Software to Teach Simulation." Annual Conference of the Nebraska Educational
Technology Association. Omaha.
- Oct 1989 Interviewed for News Watch on "Friday the 13th"/"Columbus Day" virus by Nebraska TV Network.
- Apr 1989 "Are We Teaching Database Properly?" Annual Conference of Nebraska Educational Technology
Association. Omaha.
- Jan 1984 Invited Keynote Speaker, Colorado Springs School District 11 Staff In-Service Conference;
Topic: "Trends in Computer Use in Educational Settings."
- Fall 1983 Panel Member, Education Night, Southern Colo Chapter, Data Processing Management Association;
Topic: "Computer Education Programs in Colorado Springs."

SCHOLARSHIP (continued)

MANUSCRIPTS REVIEWED:

- 2004-present Reviewer for several articles for Fall Conferences of Mountain Plains Management Association.
- 2000-present Periodically reviewed several papers for Midwest and Western Decision Science Institute.
- 2006-present. Ad Hoc Reviewer on Editorial Team for Decision Sciences Journal.
- 2006 Reviewed papers for ISECON and IACIS.
- Nov 1999 Watson, Richard T., (2000). *Data Management: Databases and Organizations*, 2nd ed.
- 1997-99 Reviewed many papers as member, Editorial Board of Academy of Information & Management Sciences.
- Apr 1996 Blind reviewer for three papers for the Management Information Systems Track of the 27th Annual Meeting of the Decision Sciences Institute. [Orlando, FL, November 1996.]
- Mar 1993 Blind reviewer for three papers for the Management Information Systems Track of the 24th Annual Meeting of the Decision Sciences Institute. [Washington, D.C., November 1993.]
- Mar 1987 Luce, Thom, Introduction to Computer Hardware, Systems Software, Operating Systems, (Santa Cruz: Mitchell Publishing, 1989). A "blind" review of the author's initial manuscript proposal.
- Fall 1983 Leeson, Marjorie, Systems Analysis and Design, Second Edition, (Chicago: Science Research Associates, 1985). During planning phase for 2nd ed. Participation acknowledged in Preface.

OTHER MONOGRAPHS

POSITION PAPERS AT KSC/UNK/MSC:

- 2006 Plan for expanding course fees for Computer Information Systems Courses at Mesa State College.
- 2006 Draft for new faculty evaluation instrument for Business Department at Mesa State College.
- 2000-03 College of Business and Technology Annual Information Technology Report, incl. faculty survey results.
- 2000-03 Several position papers on improving the MIS curriculum and MIS portion of the business core & MBA.
- 2000-01 Several internal/external documents related to starting Global Sources Information Technology Program.
- 1985-on Proposals for Improving Labs and Physical Facilities in Computer Science and Information Systems.
- Jan 1996 "Department-Specific Instructional Technology at UNK." Faculty Senate's Academic Computing Committee.
- Apr 1995 "Recommendations for Outsourcing of Personal Computers at UNK." Academic Computing Committee.
- Apr 1995 "Recommendation About UNK's World Wide Web Home Page." Faculty Senate's Academic Computing Committee.
- Mar 1995 "Recommendations for Academic Computing Usage at UNK." Faculty Senate's Academic Computing Committee.
- Aug 1994 "Resolution for a Computer Competency Requirement at UNK." Academic Computing Committee.
- Nov 1991 "Proposal for a System Administrator for CS&IS Department." To be considered when funding permits.
- Mar 1991 "Plan for Improving CS & IS Department's Computing Facilities." Adopted by department.
- Mar 1990 "Future of Academic Computing at KSC." Result: New Faculty Senate committee for academic computing.
- Jan 1989 "Proposal to Establish Four Standing Committees in Computer Science and Information Systems." Adopted.
- Nov 1987 "Proposal for Department Status for Computer Science & Information Systems," co-authored. Granted.
- Oct 1986 "Unified Model for Instructional Computing at KSC." Result: college system \$13M proposal; included in Nebr. State Legislature's appropriation bill 770 (Jan 1990); \$25,000 funded for further study.
- Mar 1986 "A Proposal for Creating Information Systems Programs at KSC." Result: majors, minor and courses.
- Nov 1985 "Goals and Objectives of Computer Science & Information Systems Programs." Result: Adopted.
- Sep 1985 "Proposal for the Master of Science in Educational Technology Degree." Result: Approved.

OTHER MONOGRAPHS (continued)

ACADEMIC PROGRAM REVIEWS:

Jul 2007 Self-Study for 2002-07 Academic Program of Computer Information Systems program at Mesa State.

Sep 1999 External Reviewer, School of Information/Computer Science, Georgia Southwestern State Univ.

May 1995 Member of External Review Team, UNK's Management and Marketing Department.

Sep 1988 Member of External Review Team, UNK's Chemistry Department.

1990,1995,2000 Wrote "Self-Study Reports" for UNK's Dept. of Computer Science and Information Systems.

MISCELLANEOUS:

2002-03 Kearney (NE) Little League. "Constitution, By-Laws, Standard Procedures and Job Descriptions."

1990-00 UNK CS&IS Department, *Annual Newsletter* editor, plus "Message from the Chair" and other articles..

1993-00 UNK Department of Computer Science and Information Systems, "Continuous Self-Study."

1990,95 U of Nebraska at Kearney, "Computer Science & Information Systems Dept Policy & Procedures Manual."

1985-00 University of Nebraska at Kearney, CS & IS student advising literature and informational sheets.

Mar 83 First Congregational Church of Colo. Springs, "Administrative Policy Guide" re: personnel policy.

1979-80 Burroughs Corporation, "Standard Small Computer Systems Sales Proposal."

1978-79 Quasar Computer Service, "Marketing Manual," sales literature pieces, & portions of employee manual.

1972-75 Burroughs Corporation, "Small Computer Systems Installation Guide."

1970-72 Tau Rho (local) Fraternity at Kearney State College, "Constitution and By-Laws."

COLLEGIATE SERVICE ACTIVITIES

AS CIS FACULTY MEMBER AT MESA STATE COLLEGE (Aug 2003 – Present)

- Sep 2005 – Present Business Dept. representative on Faculty Senate's Curriculum Committee.
- May 2005- Present Member, Faculty Senate's Salary and Benefits Committee.
- Nov 2005 – Present Member of MSC Human Resources Office's Benefits Advisory Group.
- Sep 2006 - Present Member of Business Department's Academic Honesty Board
- Aug 2006 – Present Member, Business Department Assessment Committee
- Jan 2007 – Present Member, Business Department MBA Committee
- Aug 2006 - Present Chair of CIS Committee on Assessment and Accreditation.
- Aug 2005 - Present Member of four CIS Committees on Curriculum/Advising, Assessment/Accreditation, Public Relations/Faculty Development/Retention, and Facilities/Scheduling
- May 2005 - Present Coordinator of Business Department's assessment data collection and analysis activities.
- Aug – Sep 2007 Created Paperwork and championed to Curriculum Committee several CIS curriculum changes including:
Course addition: CISB 470 CIS Lab Consultantship
Program modifications: AA, BAS, BS in Computer Information Systems
- Sep – Oct 2006 Created Paperwork and championed to Curriculum Committee several CIS curriculum changes including:
Course modification: CISB 442 Systems Analysis and Design
Course modification: CISB 451 Database Administration
Course addition: CISB 300 Information Systems Architecture
Program modification: BS in Computer Information Systems
Program addition: Bachelor of Applied Science in Computer Information Systems
- Sep – Oct 2005 Created paperwork and championed to Curriculum Committee several CIS curriculum changes, including:
Course modification: CISB 500 Management of Information Systems
Course addition: CISB 470 Management of Information Systems
Course addition: CISB 560 Electronic Commerce Systems
Course addition: CISB 491 Directed Readings
Program modification: BS in Computer Information Systems
- Aug – Oct 2004 Created paperwork and championed to Curriculum Committee several CIS curriculum changes, including:
Course addition: CISB 100 Basic Computer Skills
Course addition: CISB 331 Advanced Business Programming
Course addition: CISB 460 Electronic Commerce Systems
Course deletion: CISB 131 COBOL Programming
Program modification: BS in Computer Information Systems
- Oct – Nov 2006 Assisted Business Department Head to create BBA concentration and four courses in Energy Management.
- Mar 03 – Nov 04 Created Power Point presentation to recruit CIS majors; combined best ideas from several previous student and faculty presentations.

COLLEGIATE SERVICE ACTIVITIES (continued)

AS CIS FACULTY MEMBER AT MESA STATE COLLEGE (continued)

- May-Aug 04 Created & taught CISB 496 / BUGB 520 Special Topics: E-Commerce Systems as a WebCT-delivered distance education course to twenty-seven students.
- May-Jun 07 Created & taught MARK 496 / BUGB 520 Special Topics: International Electronic Marketing as a WebCT-delivered distance education course to twenty-six students.
- Mar-Aug 04 Designed, ordered equipment for, and supervised student lab assistant in creating new LAN to support e-commerce course, Dell server & five clients with Windows Server & Macromedia Suite.
- Sep 2004 Authored proposal for Student Tech fees to improve general lab in Hou 103. Result: 17 new computers.
- Jan 2007 Established contract between Business Dept. CIS Program and Microsoft Corp's Academic Alliance. This will save thousands of dollars annually for CIS labs, provide a service activity for CIS students, and provide opportunity to raise significant amount of funds for the student AITP chapter (computer club).
- Mar 2007 Wrote proposal and coordinated successful efforts to expand CISB course fees to all CISB courses.
- Summer 2006, 2007 Supervised overhaul of CIS dedicated computer labs (Houston Hall 103-104) to include:
Linux & Java Development Local Area Network with
Omando, Eclipse, Apache, JBoss, MySQL, Open Office
Windows 2003 – Visual Basic Development Local Area Network with
Visual Studio.Net, Macromedia Suite, Office, Project, Visio, Oracle
- Dec 03 – Oct 04 Assisted prepare & host 46th annual conference of Mountain Plains Management Association, including:
Created MPMA conference web site,
Maintained and managed emailing list of 7000 names,
Served as track chair for both CIS and marketing,
Arranged reviewers, discussants and session chairs,
Designed conference Proceedings CD format,
Supervised students who prepared 108 copies of CD,
Chaired two sessions and discussed two papers,
Served as master of ceremonies for banquet.
- Aug 03-present Participated in efforts to maintain & improve quality of Computer Information Systems program, including:
ABET accreditation efforts,
Annual program assessment,
Changes to CIS admissions form,
Change to CIS program sheets,
Curricular discussions,
ICCP IS exit examinations,
Review of recruiting letters,
Updates to program web pages.

COLLEGIATE SERVICE ACTIVITIES (continued)

AS PROGRAM DIRECTOR (9/85 - 8/88) & DEPT CHAIR (9/88 - 8/00), DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION SYSTEMS:

Ongoing Duties: Directed all aspects of ten major/minor/endorsement programs in CSIS.
Coordinated, supervised, evaluated, counseled 6-7 full-time and several adjuncts.
Chaired and/or directed activities of four CS and IS faculty search committees.
Administered department budget (approx. \$340,000, including personnel services).
Established departmental administrative procedures and record keeping.
Developed semester and summer class schedules. Conducted dept faculty meetings.
Represented department on NSS College Council of Chairs and UNK Council of Chairs.
Engaged in prospective student recruiting activities. Managed physical facilities.
Publicized programs to high schools, community colleges, ESU's, and the public.

Special Projects: Oversaw faculty discussions on potential merger of CS&IS and BMIS (1994-95).
Coordinated changes to all major/minor/endorsement programs (85-87, 90-91 & 94-95).
Developed new Educational Technology Masters Degree Program and courses (1986).
Developed new Information Systems undergraduate degree programs & courses to align with ACM IS and DPMA CIS-86 model curricula(1987).
Acquired department's first mini-computer systems & upgrade student & faculty labs (MS/DOS/Windows; IBM 3900 (VM/CMS); AT&T 3B2 (UNIX); DEC VAX750 (VMS); network)
Developed plan to improve facilities & worked to acquire faculty office computers.
Created CSIS Library/Resource/Reading Room and CSIS CASE/UNIX student computer lab.
Developed two brochures and a variety of student advising and recruiting materials.
Created 4 standing department committees. Waged campaign to gain department status.
Coordinated Academic Program Review & authored Self-Study Reports (Fall 90, Spg 95).
Hosted Secondary School Computer Educator Forums and Programming Contests (1992-95)
Created four courses and Minor in Midrange Client Server Applications Development.

AS AN ADVOCATE FOR IMPROVING ACADEMIC COMPUTING AT UNK:

Sep 85 - May 03 Supervised independent studies & class projects to improve computing for UNK depts.
Spring-Fall 1986 Chaired VPAA's Ad Hoc Advisory Task Force on Instructional Computing.
Developed/co-authored a campus-wide statement of instructional computing needs.
Spring-Fall 1986 Served on committee to computerize KSC Foundation/Alumni Office. Created data flow diagrams which were used as model to analyze operations of admin offices.
Fall 86-Spring 87 Served on State College Board of Trustees' RFI/RFP Task Force for 4 state colleges.
July - Sept 1988 Member of Academic Computing Task Force, appointed by State College Presidents.
Spring 1989 Member of VPAA's Ad Hoc Academic Computing Advisory Group.
Fall 1989 Developed justification of need for UNK Director of Academic Computing position; result: creation of Faculty Senate's Academic Computing Committee.
Fall 90-Spring 93 Advisor to Dean of Continuing Studies on creating computer labs at College Park,
Spring 1995 Member of Faculty Senate's Task Force on a Computing Competency Requirement at UNK.
Aug 90 - May 00 Member, Faculty Senate's Academic Computing Committee. Secretary 92-96. Chair 99-00.
Oct 94 - May 96 Chair of UNK ACC's Telecommunications, Standards and Policies Subcommittees.
Dec 95 - Aug 98 Member of UNK Vice Chancellor for University Relations' Internet Task Force.
Spring-Sum 1996 Member of NU Provost's Committee on Special Information Technology Related Projects.
Fall 98-Spring 99 Member of NU Provost's Committee on Distance Education Policies.
May 97 - Feb 98 Chair, Chancellor's Search Committee for Director of Computer Services.
Nov 99 - May 00 Member of UNK Sr VCAA's Ad Hoc Committee on Information Technology Programs.
Nov 95 - May 03 Member of UNK Chancellor's Technology Advisory Committee.
Spring-Sum 1999 Surveyed Faculty Computing Preferences, Chancellor's Technology Advisory Committee.
Sep 00 - May 03 Chair, UNK Business and Technology Ad Hoc Information Technology Committee

COLLEGIATE SERVICE ACTIVITIES (continued)

OTHER UNK SERVICE ACTIVITIES:

- Fall 85-Spring 87 Advised student chapter of ACM Machinery; Chaperoned field trip to Colorado.
- February 1987 Participated in Partners in the Classroom exchange program at Papillion High School.
- Summer 1987 Served on Dean's task force to improve student evaluations in NSS.
- Nov 87 - Apr 88 Member of Search Committee for Dean of the School of Natural and Social Sciences.
- Spring 1987 Member of Advisory Committee for the new Telecommunications Programs.
- Jul 93 - Aug 95 Key Advisor for deciding students, through UNK Advising Center.
- Oct 95 – May 96 Member of Sr.VCAA's Continuing Education & Expanded Campus Task Force.
- May 1996 Member, Criminal Justice's Peer Review Committee & author of the committee's report.
- Spring 1997 Member of Faculty Search Committee for UNK's Department of Management and Marketing.
- Oct 92 – Oct 99 Volunteer for NU Foundation's Faculty & staff Campaign.
- Dec 92 – Dec 96 Member of UNK's Evaluation Team for Who's Who in American Colleges and Universities.
- Sep 97 – May 03 Member of Dean of Continuing Education's Summer Synergy Committee.
- Dec 99 – May 03 Member of NU Provost's committee to administer new Entrepreneurial Awards.
- Sep 01 - May 03 Advisor to student chapter of Association for Information Technology Professionals.
- Sep 00 – May 03 Member, College of Business and Technology Dean's Council.
- Sep 85 – May 03 Member, Council of Department Chairs/Directors (secretary, 95-96) (chair, 96-97)

AS DIRECTOR OF GLOBAL SOURCES PROGRAMS AT UNK (Aug 2000–JUN 2003)

- Interacted with the program donor and his representatives to embellish the program;
- Created advertising pieces for the program and promoted the program on and off-campus;
- Sponsored community technology forums and served as presenter and master of ceremonies;
- Supervised the student loan processes (solicited, approved and maintained contact with recipients);
- Produced annual reports and proposals for improving the program;
- Managed \$1,000,000 donation, which was spread over five years.

COMMUNITY SERVICE ACTIVITIES

RELATED TO MY PROFESSION:

- Supervised eight CIS and Marketing student teams as they performed analysis projects for local business. (2007).
- Creation and management of Western Slope Electronic Mall for free advertising space for local small businesses (www.wsmall.com) (2004-present).
- Consulted (pro bono) to City of Kearney on improving information management procedures (1998-2003).
- Consulted to Scotts Bluff County Law Enforcement Unification Project on information requirements of eight law enforcement agencies (County Sheriff, Police Depts, Jail, County Attorney, Comm Center) (Fall 99).
- Visited Kearney High School programming classes to discuss careers in computing (Oct 97, 98, 99, 00).
- Conducted computer training sessions for Nebraska Public Power District, Kearney office (Summer 94).
- Nebraska Department of Education's Computer Science Endorsement Committee (Spring 1994).
- Nebr. Dept. of Education's Technology Training, Competencies, and Advance Degrees Task Group (1992-1994).
- Analyzed electronic bulletin board system capacity problems for Educational Service Unit #10 (Nov 1992).
- Designed and programmed a relational database DSS for an electronic components manufacturer to assign manufacturing workers to a desired mix of jobs under extensive ergonomic constraints (Fall 91-Spg 92).
- Advised Kearney Public Schools on district-wide database; conducted normalization, (Nov 94 - Feb 95).
- Solved a "non-programmable" problem for Kearney Dart Association by designing league schedules that meet extraordinary constraints and satisfy several conflicting goals (January 1988).
- Served as Expert Witness in computer fraud civil case to be argued in U.S. District Court (1984-85).
- Supervised and coordinated student class projects, internships, and independent studies to accomplish "live" projects as a volunteer service to industry (September 1985 - present) including:
- Simulation projects: The paper flow of a financial aid office; UNK course registration process;
 - Scheduling for a home cleaning service; Flow through a micro beer brewery;
 - Fish life cycle activity in a fishing pond; Riders on college bus route.
 - Customer traffic for a retail grocery chain; Traffic at 25th St. and 2nd Ave.;
 - Operations of college food service; Customer queues for several restaurants;
 - Freight shipping for clothing chain; Log-ons for an Internet service provider.
- Advice on acquisition of computer systems: Phelps County Board of County Commissioners;
- Retail appliance store; Two manufacturers;
 - Central Platte Natural Resource District
- Design and development of software: Educational Service Unit; many businesses & college offices.
- Served populations in several Nebraska communities by teaching overload & summer classes on demand in computer science, information systems, and educational technology in Grand Island (13 semesters), Holdrege (1 summer), North Platte (1 summer), Sutherland (1 summer), Omaha (1 summer and 2 semesters), Bellevue (1 summer), Nebraska City (1 summer), Columbus (2 semesters), Trenton (4 summers), McCook (1 semester), and via satellite from UNK campus (7 courses over 4 summers).

COMMUNITY SERVICE ACTIVITIES (continued)

GENERAL:

Neighborhood volunteer, March of Dimes (Feb 2005).

Coach, Monument Little League 15-16 year olds (Grand Junction) (spring-summer 2004).

Unity Center of Central Nebraska, presented sermons on Mother's Day and Christmas Sunday, 2003.

Chair, Political Action Committee to get out the vote for Kearney City Bond Issue (winter 2002.)

Member, Kearney Little League Board of Directors (Fall 1999 – Summer 2003) (president 2001-03).

Coach, Kearney Little League youth baseball teams (Springs and summers of 1997-2003).

Assistant Coach, Kearney Midget Football youth teams (Falls of 1997, 1999).

Assistant Coach, Kearney Soccer Club youth teams (Falls and springs of 1994-1997).

Announcer and Score Keeper for Kearney Blue Jay Midget baseball home games (Summer 1993).

Volunteer work, First Congregational Church of Colorado Springs:

Member of Board of Christian Education (1978-80), chairman (1980)

Youth Group Sponsor and Youth Class Teacher (1978-79),

Presented sermon on Christian Education Sunday (1980), on Pledge Sunday (1984),

Member of Board of Deacons (1981-82), Presented seminars in self-esteem (1984).

Assistant Moderator (1983), Moderator (chief administrator and lay leader) (1984),

OTHER PROFESSIONAL ACTIVITIES

CERTIFICATIONS:

Full-time Colorado Vocational Credential in Data Processing, Marketing, and Management (1980 - 1990).

HONORS AND RECOGNITION:

Mesa State College: Nominated for Distinguished Faculty Award for Scholarship (May 2006).

Meritorious Paper Award at Information Systems Educator Conference (ISECON) for Snyder, J., Carpenter, D. A., & Slauson, G. J. (2006). MySpace.com - A Social Networking Site and Social Contract Theory. Proceedings of the. (Nov 2006).

Best Paper in CIS Track at Mountain Plains Management Association Fall Conference for Carpenter, D.A., McGinnis, D.R. & Slauson, G.J. (2005). Invalid predictors of future success in IT jobs. (Oct 2005)

Iota Alpha Delta Innovation Education Best Paper Award at Annual Meeting of Midwest Decision Sciences Institute for Carpenter, D.A. & Agrawal, V.K. (2005). IT-enabled transformation of business schools' core curriculum: A longitudinal study on radical change. (Apr 2005)

Selected as member of Iota Alpha Delta honorary fraternity for above awarded paper. (Apr 2005).

University of Nebraska at Kearney: Nominated and elected to Phi Kappa Phi honorary fraternity (2002).

University of Nebraska at Kearney: Nominated for Pratt-Heins Award for Teaching Excellence (1998, 1999).

University of Nebraska at Kearney: Selected for inaugural "Profiles in Excellence" program (Aug 1998).

Citation of Excellence Award from the ANBAR Management Intelligence association for Carpenter, D.A. (Joint Author) (1996). "A heuristic job scheduling decision support system: a case study." Article originally appeared in *The International Journal of Decision Support Systems*, 18 (2). Award presented fall 1997.

University of Nebraska at Kearney: Recognition of ten years of service (Apr 1995); 15 yrs (Apr 2000).

University of Nebraska at Kearney: Honorary Member by student chapter of ACM (May 94 and May 97).

University of Nebraska at Kearney: Recognition of Outstanding Service by student Mortar Board (Feb 94).

Kearney State College: Tenured & promoted to Associate Professor after 3 1/2 years of service at KSC;

Kearney State College: Unanimously elected 1st Chair of Computer Science & Information Systems (Aug 88).

Kearney State College: Certificate of Appreciation from President for Partners in Classroom (Apr 1987).

Kearney State College: Residence Life Honor Roll for special assistance given new students (Sep 86).

Pikes Peak Community College: Recognition for efforts to improve academic computing environment (Apr 85).

Pikes Peak Community College: Nomination for Outstanding Occupational Studies Instructor Award (Apr 82).

Burroughs Corporation: President's Honor Roll & Legion of Honor for exceeding sales quotas (73, 74, 75).

OTHER PROFESSIONAL ACTIVITIES (continued)

SAMPLING OF OTHER ACTIVITIES:

- Oct 2001 Organizer, Sponsor, Master of Ceremonies, Global Sources E-Commerce Symposium. Kearney.
- Sep 1999 Master of Ceremonies, First Annual Kearney Technology Fair, sponsored by Kearney Area Society for Computer and Information Professionals and Kearney Area Chamber of Commerce. Kearney.
- May 1998 Facilitator of Pew Roundtable Discussion for UNK's College of Business and Technology.
- Mar 1998 Moderator at Barbara Simon's keynote presentation at UNK's Annual World Affairs Conference.
- May 1995 UNK Faculty Retreat & panel member on a student computer applications competency requirement.
- 1988-2000 Periodic UNK Arts and Science Luncheon Research Colloquium highlighting current UNK research.
- 1988-2000 Sigma Xi's presentation of research sponsored by UNK's Research Services Council.
- 1988-2003 Biennial World Affairs Conferences, University of Nebraska at Kearney (host, session chair).
- 1988-92 Periodic UNK College of Natural and Social Sciences "Think Breaks"
- Feb 88,91 Grant Writing Seminars at the University of Nebraska at Kearney.
- Spring 1987 The Possible Dream, an institutional planning conference at Kearney State College.
- Sep 86-91 Annual Symposium on Research in Education at the University of Nebraska at Kearney.
- Oct 1986 Chair Development Conference in Management, Leadership and Motivation, Ft. Hays, Kansas.
- Jun/Sep 86 Nebraska State College Board's Academic Computing System Development Conferences.
- Mar 1986 Local Area Networking Seminar at the University of Nebraska at Omaha.
- Nov 1984 Computing Directions for the 80's, a seminar sponsored by Hewlett Packard Company in Denver.
- May 1984 The 10th Anniversary Conference of the Information Systems Programs at U of CO – Colo Springs.
- Jun 83,84 Annual Conventions of the American Banking Association, in Los Angeles and Chicago.
- Apr 79-85 Annual Conventions of the Southern Colo. Chapter of Data Processing Management Association.

Johnny Snyder

Mesa State College • Department of Business
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August 2007

Educational History:

- M.S. March 2005; Nova Southeastern University, Ft. Lauderdale, Florida 33329;
Computer Information Systems
- Ph.D. August 1999; University of New Mexico, Albuquerque, New Mexico 87131;
Applied Mathematics; Dissertation: "A Mathematical Analysis of Induced Defenses in a Plant-Herbivore System," Advisor: Dr. Deborah Sulky
- M.A. August 1991; University of New Mexico, Albuquerque, New Mexico 87131;
Applied Mathematics
- B.A. April 1988; Fort Lewis College, Durango, Colorado 81302;
Major: Mathematics; Minor: Computer Science

Employment History:

- Associate Professor: 2005 – present; Department of Business Computer Information Systems, Mesa State College, Grand Junction, Colorado 81501
- Associate Professor and Chair: 2003-2005; Department of Mathematics and Computer Science, Sul Ross State University, Alpine, Texas 79832 and Universidad Autónoma de Chihuahua, Chihuahua, Mexico
- Assistant Professor: 1999-2003; Department of Mathematics and Computer Science; Sul Ross State University, Alpine, Texas 79832
- Assistant Professor: 1998-1999; Department of Mathematics and Computer Science; Pacific University, Forest Grove, Oregon 97116
- Faculty: 1994-1999; Department of Continuing Education; University of New Mexico, Albuquerque, New Mexico 87131
- Teaching Assistant: 1988-94 and 1997-98 Department of Mathematics and Statistics; University of New Mexico, Albuquerque, New Mexico 87131
- Adjunct Faculty: 1994-1997; Southwestern Indian Polytechnic Institute, Albuquerque, New Mexico 87121

Part-Time Instructor: 1994-1997; Department of Mathematics and Statistics, University of New Mexico, Albuquerque, New Mexico 87131

Graduate Assistant: 1994-1996; Minority Engineering Programs, College of Engineering; University of New Mexico, Albuquerque, New Mexico 87131

Teaching:

Master's Committees/Advisement:

Bill Adams (Natural Resource Management), 2002
A Kill Rate Model for Texas Mountain Lions

Lynn Cassell (Biology), 2002
Analysis of Vocalizations of Lilian's Race of the Eastern Meadowlark (*Sturnella magna lilianae*) in West Texas

Bachelor's Advisement/Senior Project Direction/Honors Thesis

Supervision/Student Project Advisement:

Erica Price (Mathematics), 2000
Stability of a Spring/Dashpot System

Jose Carillo (Mathematics), 2003
The Mathematics of Coupled Dynamical Systems

Ida Ramirez (Mathematics), 2003
Numerical Solution of a Titration Problem

Bernie Calderon (Mathematics), 2004
An Analysis of the TExES Exam

Thomas Wolfe (Computer Information Systems), 2006
The E-Grocer Factor: Why Didn't It Work and How Can It Work Now
***First Place Award, Student Paper Competition at the AITP National Collegiate Convention, 2006**

Juliana Munoz (Computer Information Systems), 2006
The Corporate Social Responsibility of Pure-Play Sites versus Brick-and-Mortar Corporations

Telicia Chaffin (Computer Information Systems), 2007
E-voting
***Third Place Award, Student Paper Competition at the AITP National Collegiate Convention, 2007**

Charles Smith (Computer Information Systems), 2007

Podcasting for Universities

***Top Ten Placement, Student Paper Competition at the AITP National Collegiate Convention, 2007**

Bill Jackson and Jarrod Harper (Computer Information Systems), 2007

Student Web Site Design – ASFCME Local 3375

***First Place Award, Web Site Design, AITP National Collegiate Convention, 2007**

Classroom Teaching:

Semester	Course	Location
Fall 1988	Math 150, College Algebra	University of New Mexico (UNM)
Spring 1989	Math 162, Calculus I	UNM
Fall 1989	Math 180, Business Calculus I Math 181, Business Calculus II	UNM UNM
Spring 1990	Math 180, Business Calculus I Math 181, Business Calculus II	UNM UNM
Summer 1990	Math 123, Trigonometry	UNM
Fall 1990	New Mexico Junior Mathematics Prognosis Exam Project (JUMP)	Department of Mathematics and Statistics, in Conjunction with the Office of the Provost, University of New Mexico
Spring 1991	New Mexico Junior Mathematics Prognosis Exam Project	Department of Mathematics and Statistics, in Conjunction with the Office of the Provost, University of New Mexico
Summer 1991	Math 123, Trigonometry (two sections)	UNM
Fall 1991	Math 180, Business Calculus I New Mexico JUMP	UNM UNM
Spring 1992	Math 162, Calculus I New Mexico JUMP	UNM UNM
Summer 1992	Math 111, Mathematics for Elementary School Teachers I	UNM

Fall 1992	Math 150, College Algebra	UNM
Spring 1993	Math 162, Calculus I	UNM
Summer 1993	Math 163, Calculus II	UNM
Fall 1993	Math 264, Calculus III	UNM
Spring 1994	Math 123, Trigonometry Math 264, Calculus III Math 316, Differential Equations	Minority Engineering, Mathematics, and Science Project (MEMS)
Summer 1994	Math 129, A Survey of Mathematics	Native American Program, College of Engineering
Fall 1994	Math 123, Trigonometry Math 264, Calculus III Math 316, Differential Equations Math 112, Mathematics for Elementary School Teachers II	MEMS Southern Pueblo Agency
Spring 1995	Math 163, Calculus II Math 264, Calculus III Math 316, Differential Equations Math 215, Mathematics for Elementary School Teachers III	MEMS Southern Pueblo Agency
Summer 1995	Mathematical Modeling* Pre-Calculus	Phillips Academy Andover, Massachusetts
Fall 1995	Math 314, Linear Algebra Math 316, Differential Equations Math 150, College Algebra	MEMS Southwestern Indian Polytechnic Institute (SIPI)
Spring 1996	Math 181, Business Calculus II Math 314, Linear Algebra Math 316, Differential Equations Math 150, College Algebra	MEMS SIPI
Summer 1996	Math 316, Differential Equations Math 162, Calculus I	UNM SIPI
Fall 1996	Math 163, Calculus II Math 162, Calculus I	UNM SIPI
Spring 1997	Math 162, Calculus I Math 163, Calculus II	UNM SIPI
Fall 1997	Math 181, Business Calculus II	UNM
Spring 1998	Math 180, Business Calculus I	UNM
Summer 1998	Math 316, Differential Equations	UNM

Fall 1998	Math 122, College Algebra Math 125, Pre-calculus Math 206, Numerical Linear Algebra	Pacific University (PU)
Winter III	Math 165, Introduction to Contemporary Mathematics	PU
Spring 1999	Math 122, College Algebra Math 226, Calculus I Computer Science 230, Introduction to Software Tools	PU
Summer 1999	PASS Program	Sul Ross State University (SRSU)
Fall 1999	Math 1310, University Mathematics Math 1300, Developmental Mathematics, PASS Program	SRSU
Intersession 2000	Math 1315, University Algebra	SRSU
Spring 2000	Math 2306, Statistics Math 3306/CS3306, Numerical Analysis Math 3320, Differential Equations	SRSU
Summer 2000	Math 1310, University Mathematics Math 1321, Calculus II PASS Program	SRSU
Fall 2000	Math 2306, Statistics Math 1320, Calculus I Math 1300, Developmental Mathematics (PASS Program) Math 5301, Graduate Special Topics*	SRSU
Spring 2001	Math 1320, Calculus I (Distance) Math 1321, Calculus II Math 2306, Statistics Math 3320, Differential Equations	SRSU
Summer 2001	Math 1310, University Mathematics PASS Program	SRSU
Fall 2001	Math 1315, University Algebra Math 1316, Trigonometry Math 1342, Statistics Math 3101, Departmental Seminar	SRSU
Spring 2002	Math 1342, Statistics Math 1321, Calculus II Math 3320, Differential Equations Math 3101/CS 3101, Departmental Seminar	SRSU

Summer 2002	PASS Program	SRSU
Fall 2002	Math 1342, Statistics Math 2320, Calculus III GBA 3350, Business Statistics Math 4360, Complex Variables* Math 3101/CS 3101, Departmental Seminar	SRSU
Spring 2003	Math 1342, Statistics Math 1320, Calculus I GBA 3350, Business Statistics GBA 5309, Quantitative Analysis and Decision Theory for Business	SRSU University Aut3nomo de Chihuahua (UACH)
Summer 2003	PASS Program	SRSU
Fall 2003	Math 2413, Calculus I Math 3101/CS 3101, Department Seminar Math 3306*, Computing in Mathematics* Math 4390, Senior Project CIS 3360*, Legal and Ethical Issues in Computing in Business*	SRSU
Spring 2004	Math 2413, Calculus I Math 2414, Calculus II Math 3101/CS 3101, Department Seminar CIS 3370*, System Analysis and Design* GBA 5304, Management Information Systems	SRSU
Summer 2004	GBA 5304, Management Information Systems	UACH
Fall 2004	Math 1325, Business Calculus Math 3101/CS 3101, Department Seminar Math 3350, History of Mathematics CIS 3360, Legal and Ethical Issues in Computing in Business	SRSU
Spring 2005	Math 1342, Statistics CIS 3323*, Human Computer Interaction* GBA 5309, Quantitative Analysis and Decision Theory for Business	SRSU UACH

Fall 2005	CISB 101, Business Information Technology CISB 210, Fundamentals of Information Systems CISB 460, Electronic Commerce	Mesa State College (MSC)
Spring 2006	CISB 101, Business Information Technology CISB 210, Fundamentals of Information Systems CISB 400, Data Communication and Network Management	MSC
Summer 2006	CISB 101, Business Information Technology	MSC
Fall 2006	CISB 101, Business Information Technology CISB 460, Electronic Commerce (online class utilizing WebCT) MANG 331, Quantitative Decision Making	MSC
Spring 2007	CISB 101, Business Information Technology CISB 400, Data Communication and Network Management (Utilizing WebCT) MANG 331, Quantitative Decision Making (Distance learning format to Montrose, Colorado campus)	MSC
Fall 2007	CISB 101, Business Information Technology MANG 341/CISB 341, Quantitative Decision Making CISB 460/560, Electronic Commerce	MSC

* = courses developed and/or added into curriculum

Scholarly Achievements:

Articles appearing in Journals:

1. *A Brief History of Population Models*
The Pentagon, Fall, 1995, p.9-18.
2. *Stability Considerations for Numerical Methods*
SIAM Review **39**, n. 4, 1997, p. 755-760.
3. *MySpace.com A Social Networking Site and Social Contract Theory*
Information Systems Education Journal **5**, n. 2, 2007.

Refereed Proceedings Publications

1. Evaluating E-Commerce: An Aesthetic Perspective
Proceedings of the 2005 MPMA Conference
2. The Corporate Social Responsibility of Pure-Play Sites versus Brick-and-Mortar Corporations; with Juliana Munoz
Proceedings of the 2006 MPMA Conference
3. The Development Methodology Of A Metropolitan Statistical Area Price Index Model; with Morgan Bridge and Jeffrey Naas
Proceedings of the 2006 IBER & TLC Conference
4. MySpace.com A Social Networking Site and Social Contract Theory, with Gayla Slauson and Don Carpenter
Proceedings of the 2006 ISECON Conference
***Meritorious Paper Award**
5. Copyright Ethics: Relating to Students at Different Levels of Moral Development, with Gayla Slauson and Don Carpenter
Proceedings of the 2006 ISECON Conference
6. It's a Wiki-World: Utilizing Wikipedia as an Academic Reference
Proceedings of the 2007 MPMA Conference
7. Motivating And Managing Computer Personnel In The 21st Century: Expanding The Pilot Study
with Don Carpenter, Gayla Jo Slauson and MaryAnne Winniford
Proceedings of the 2007 MPMA Conference
8. Nano-Studies in a Business Course; Providing Small Portions of Information with Pointers to More Detail
with Gayla Jo Slauson
Proceedings of the 2007 MPMA Conference
9. Using the National Collegiate Conference as a Focal Point for an AITP Student Chapter's Annual Activities
with Gayla Jo Slauson, Bill Jackson, Telicia Chaffin
Proceedings of the 2007 ISECON Conference

Invited or refereed talks/presentations to professional meetings

1. "An Introduction to Dynamical Systems"
1994 Region V Conference, Kappa Mu Epsilon, Mathematics

- Honor Society, Albuquerque, New Mexico, April 9, 1994.
2. "A History of Population Models"
Thirtieth Biennial Convention, Kappa Mu Epsilon,
Mathematics Honor Society, Durango, Colorado,
April 21, 1995.
 3. "The Balloon Bifurcation"
1996 Region V Conference, Kappa Mu Epsilon, Mathematics
Honor Society, Grand Junction, Colorado, April 21, 1996.
 4. "Partial Differential Equations and Population Models"
Mathematical Association of America Regional Meeting
April, 2000
 5. "Evaluating E-commerce: An Aesthetic Perspective"
Mountain Plains Management Association Annual Meeting
Southern Utah University, Cedar City, Utah
October, 2005
 6. "The Corporate Social Responsibility of Pure-Play Sites versus Brick-and-Mortar
Corporations"
Mountain Plains Management Association Annual Meeting
Utah Valley State College, Orem, Utah
October, 2006
 7. "It's a Wiki-World: Utilizing Wikipedia as an Academic Reference"
Mountain Plains Management Association Annual Meeting
University of Nebraska at Kearney
October, 2007
 8. "Using the National Collegiate Conference as a Focal Point for an AITP Student
Chapter's Annual Activities"
ISECON 2007, Pittsburgh, Pennsylvania

Contributed (unrefereed) abstracts/presentations:

1. "Linear Partial Differential Equations and Population Models"
Graduate Student Seminar, Albuquerque, New Mexico,
September 13, 1994.
2. "Plant-Herbivore Interactions: A Plant Quality Model"
Graduate Student Seminar, Albuquerque, New Mexico,
October 21, 1997
3. "Numerical Methods"
Department Seminar, Alpine, Texas
September, 1999
4. "H or h?"
Department Seminar, Alpine, Texas
March, 2000
5. "What's the Difference?"
Department Seminar, Alpine, Texas
September, 2000

6. "A minus times a minus is a plus"
Department Seminar, Alpine, Texas
February, 2001
7. "Benford's Distribution"
Department Seminar, Alpine, Texas
August, 2001
8. "The Spot Problem"
Department Seminar, Alpine, Texas
February, 2002
9. "Fibonacci Sequences and Generalized Fibonacci Sequences"
Department Seminar, Alpine, Texas
August, 2002
10. "Some Sums"
Department Seminar, Alpine, Texas
August, 2003
11. "On Presenting"
Department Seminar, Alpine, Texas
September, 2004
12. "Usability"
AITP Student Chapter Meeting, Grand Junction, Colorado
September, 2006
13. "Usability Challenge"
AITP Student Chapter Meeting, Grand Junction, Colorado
October, 2006
14. "Voting Theory"
AITP Student Chapter Meeting, Grand Junction, Colorado
November, 2006

Professional Conferences:

1. Supercomputing
April, 1991
2. Society of Mathematical Biologists Annual Meeting
May, 1995
3. October Pre-service Conference for the Training of Teachers
October, 1999
4. Mathematical Association of America Texas Section Meeting
April, 2000
5. Mathematical Association of America Texas Section Meeting
April, 2002
6. Texas Association of Two Year Colleges Annual Meeting
May, 2002
7. Mathematical Association of America Texas Section Meeting
April, 2003
8. Dallascon – Wireless Security Conference
May, 2004

9. Mountain Plains Management Association
October, 2005
10. National Collegiate Convention of the AITP (Faculty Sponsor)
April, 2006
11. DEFCON 14
August, 2006
12. Mountain Plains Management Association
October, 2006
13. National Collegiate Convention of the AITP (Faculty Sponsor)
March, 2007
14. Mountain Plains Management Association
October, 2007
15. ISECON (Information Systems Educators Conference)
November, 2007

Professional Affiliations:

AITP Association for Information Technology Professionals
EDSIG AITP Education Special Interest Group

Service to Profession:

Professional Service:

1991 Session Aide, Supercomputing Annual Meeting
1993 Session Aide Supervisor, American Physical Society Annual Meeting
1994 Referee, Math Presentations of Navajo Community College Science
 Honors Scholars
2000 - 04 Director and Judge, University Interscholastic League contest,
 computer applications competition, mathematics, calculator applications
 and number sense competitions.
2004 Judge, Chihuahuan Desert Research Institute Annual Conference –
 Student paper and poster sessions.

Fort Lewis College:

1987-88 Senior Class Vice-President
1988 Student Representative, Presidential Selection Committee

University of New Mexico:

1989-95 Student representative to the Graduate Student Association (GSA) from
 the math department
1989-91 GSA representative to the campus planning committee

- 1989-93 GSA representative to the National Association of Graduate and Professional Students
- 1990-93 GSA representative to the student union board.
- 1992 Member, GSA evaluation task force
President, GSA (Elected Position)
- 1992-93 Council Chair, GSA (Elected Position)
- 1993 Member, Student Union Building Director search committee
- 1997 Member, Math Department Committee on Graduate Studies

Sul Ross State University:

- 1999-02 Member, Research and Development Council
Secretary 2000-01, Chair 2001-02
- 1999 Chair, Computer Science Faculty Search Committee
- 2000-02 Member, Orientation Committee
- 2000-01 Member, Recruitment Issues Committee
- 2000 Member, Computer Services Committee
- 2001-02 Living/Learning Centers Committee
- 2001-02 Computer Information Systems Program Development Committee
- 2002 Chair, Mathematics Faculty Search Committee
- 2002 Financial Aid Appeals Committee
- 2002-04 Library Information Technology Council
Secretary 2002-03, Chair 2003-05
- 2004-05 Chair, Dean of Arts and Sciences Search Committee
- 2005 Computer Information Systems Faculty Search Committee

Mesa State College

- 2005-06 Faculty Search Committee (CIS)
- 2005-08 Curriculum Advisory Board for Colorado Mountain College
- 2006-08 Faculty Search Committee (Finance)
- 2006 - Recruitment, Advisement and Retention Committee
- 2007 - Luminis Web Portal Committee

Community:

- 1977 Eagle Boy Scout
- 1977-81 Member, National Ski Patrol
- 1979-81 Captain, Junior National Ski Patrol
- 1983-87 Member, Board of Directors, Durango Natural Foods
- 1986-87 Secretary to the Board of Directors, Durango Natural Foods
- 1986-88 Disk Jockey, KDUR 91.9 FM, student managed radio, Fort Lewis College
- 1996 Judge, Garfield Middle School Science Fair
- 1995-97 Volunteer, Explora! Science Center
- 1999 Judge, Northwest Science Exposition

2001	Eagle Scout Review Board Member
2003	Judge, Marathon ISD Science Fair
2003	Guest Presenter, Alpine High School
2004	Alpine High School Site Based Decision Making Committee
2004	Alpine High School Vertical Curriculum Alignment Committee
2007	Guest Presenter, Fruita 8/9 School

Administration, Curricular Development:

Co-organizer for the New Mexico JUMP (JUnior Mathematics Prognosis) Project:

This was a project which promoted mathematics awareness in public school systems throughout New Mexico. During the time of my involvement the exams were updated, the grading and reporting process was computerized using Scantron forms and Scanform software, and teacher suggestions were incorporated into the examination and reporting processes, as well as into the statistical analysis. Throughout my involvement with this program, many of the teachers in the Albuquerque area invited me to give lectures about the applications of mathematics to their classes which helped them illustrate the importance of mathematics to their students. (1990-92)

Mathematics instructor for the TRIBES Summer Program, Native American Program College of Engineering (NAPCOE):

This was a bridge program for Native American students from throughout North America. As the mathematics instructor I was responsible for curriculum development and implementation. As a part of the program staff, I helped organize activities and set standards for the students. I acted as a mentor to the students, and attended training sessions such as "Imaginal Education for Mathematics and Science Educators," and "Facilitation Methods." (1994)

Mathematics instructor at Phillips Academy in Andover, Massachusetts:

During this summer program, I supervised a male dormitory, taught a physical education class and developed and instructed a class in Mathematical Modeling. Topics covered included dimensional analysis, traffic flow problems, the mathematics of pool, fractals, and population mathematics from both a discrete and a continuous perspective. (1995)

Distance Education Curriculum Development, University of New Mexico:

I was involved with the Department of Continuing Education at the University of New Mexico revising the course curriculum for correspondence classes. This project involved putting together a syllabus for students around the state (and elsewhere) to follow. These syllabi include homework assignments, practice exams, and an outline for success in correspondence coursework. The course sequences that I revised, developed, and supervised were the algebra sequence (M120, M121, and M150), the elementary education sequence (M111, M112, and M215), and the calculus for life and economic sciences (M180 and M181). (1996-1999)

Curriculum Development at Pacific University:

In conjunction with departmental members, I helped to re-write the mathematics curriculum at Pacific University. One of my primary roles was to develop an applied course in

partial differential equations which was accepted as a service course by the physics, chemistry, mathematics and computer science departments at Pacific University. (1998-99)

Course development at Sul Ross State University:

I have been developing both service courses and courses for math majors that have been incorporated into the permanent curriculum. These include Statistics (Math 1342), Numerical Analysis (Math 3306), Computing in Mathematics (Math 3306) and a year long sequence in Complex Variables (Math 4360 and Math 4361). (1999-2002)

Mathematics Instructor for the PASS (Program for Academic Success and Socialization) Program at Sul Ross State University:

I teach a two week course every summer to students who have just graduated high school and are enrolling in Sul Ross State University for the fall semester. This is a “bridge” program designed to give these students (primarily first generation college students) an advantage to ensure their success in university studies. We review the basics of algebra and geometry as well as going over good study habits which include note taking and textbook marking. For some of the students, this is a primer for college algebra or statistics, while for others it is a review for the TASP exam, an examination administered by the state of Texas for entrance into university studies. In addition to the mathematics, we have some fun with scavenger hunts and jeopardy; all having a mathematical or scientific orientation. (1999 - 2004)

Mathematics Instructor for the Upward Bound program at Sul Ross State University:

I taught a summer program to junior and senior high school students who were active in the Upward Bound Program. Topics included soil composition analysis, Voronoi diagrams and regions of influence, graph theory and geometry. (2000)

Distance Education at Sul Ross State University:

I teach classes that are televised to area high schools for dual credit (high school credit and university credit). Typically I teach college algebra or a calculus course each academic year. (1999 – 2005)

Curriculum Development at Sul Ross State University:

I was a key committee member for the development of a BBA degree in Computer Information Systems (CIS). This committee established curriculum requirements and financial need analysis for the new degree. (2001)

Curriculum Development at Sul Ross State University

I organize and run the computer science and mathematics department seminar. In this forum, faculty and students present ideas from mathematics and computer science that they find interesting. One of the main focuses of the department is the training of pre-service teachers, so this forum provides a chance for the students to “get their feet wet” via presentations in this “safe” environment. Each student enrolled in the seminar is required to present two, twenty minute talks during the semester. (2001 - 2005)

Curriculum Development at Sul Ross State University

I am developing the CIS degree program, insuring that prerequisite classes are taught in a timely manner, obtaining and maintaining the computer hardware and software infrastructure, directing library acquisitions and advising CIS majors. (2003 – 2005)

Chairman Department of Computer Science and Mathematics

As the Chair of the department, I am responsible for the oversight of the annual budget, the coordination of class offerings and the supervision of five faculty, multiple adjunct faculty, and one staff member. Additional duties include aligning our curriculum with the Academic Center for Excellence (remediation programs), working on the English Language Learners Grant in conjunction with the department of Education, and coordinating the mathematics program to align with statewide educator standards.

Faculty Advisor, Mesa State College Association of Information Technology Professionals (AITP) Student Chapter

As the faculty advisor, it is my job to generate synergy within the organization. This has been accomplished by making the National Collegiate Convention (NCC) a “target point” for the academic year. This focus enables the monthly meetings to have a theme such as “usability analysis” or “PC troubleshooting” as a fun and educational interlude to the regular agenda items. These synergistic activities have resulted in many of the AITP student chapter members participating in NCC events and bringing awards (as well as having a valuable learning experience) to Mesa State College. These activities have also facilitated student presentations in the “Student Scholars Symposium at Mesa State College and presentations to the sponsoring chapter, the Mile High Chapter of the AITP in Denver, Colorado. (2005 – present)

Distance Education, Mesa State College

As a regional service provider, Mesa State College has a need for professors to accommodate distance students. I teach classes using WebCT for online classes and distance delivery methods (two way interactive television) for our remote campus students in Montrose, Colorado. (2006 – present)

Software Proficiencies:

Programming: Fortran, Pascal, VRML and Java

Operating Systems: Windows, Mac, UNIX, LINUX and Dos

Programs: Word Processor, PowerPoint, Spreadsheet, SPSS, Stat View, PhasePlane,
LocBif, GIS, Oracle/SQL, ...

Distance Education: Experience with WebCT and Blackboard

Professional Recognition:

Charter member, Kappa Mu Epsilon, Colorado Gamma Chapter

Treasurer, 1985-86

President, 1986-88

Math Department Scholarship, Spring 1987, Fort Lewis College

This scholarship recognizes scholarly achievement, and is a monetary award for the following academic year.

First Place Award, Spring 1994, Kappa Mu Epsilon Regional Convention, University of New Mexico; This monetary award recognizes the best presentation (graduate category) of the meeting.

Member, Kappa Mu Epsilon, New Mexico Alpha Chapter
Treasurer, 1995-96

Texas NEXT (New Experiences in Teaching) Fellow, 2000

Who's Who in American Colleges and Universities, 1993

Who's Who in America, 2003

Who's Who Among America's Teachers, 2002 (Nominated by Ana M. Perez)
Who's Who Among America's Teachers, 2004 (Nominated by Alfonso Chavez Jr.)
Who's Who Among America's Teachers, 2005 (Nominated by Wesley Culver)
Who's Who Among America's Teachers, 2005 (Nominated by Johnny Mendias)

Who's Who in American Education, 2006

Who's Who in American Education, 2007

Meritorious Paper Award ISECON 2006

Curriculum Vitae
MaryAnne Winniford

ACADEMIC DEGREES:

Ph.D.	University of Arizona Tucson, Arizona	1989	Management Information Systems
B.A.	William Smith College Geneva, New York	1979	Mathematics

OTHER EDUCATION

ITSM	itSM Solutions	2005	ITIL Foundations Level Certification
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PROFESSIONAL EXPERIENCE:

2006-Present	Mesa State College, Grand Junction, CO Assistant Professor of Computer Information Systems
1999-2006	Enterprise Management Associates, Boulder, CO Analyst covering Information Systems Service Management
1998-1999	University of Colorado, Boulder, CO Visiting Professor of Information Systems
1996-1998	Southern Methodist University, Dallas, TX Lecturer in Information Technology and Operations Management
1993-1996	University of North Texas, Denton, TX Visiting Professor in Information Technology & Decision Sciences
1992-1993	Westminster College, Salt Lake City, UT Assistant Professor of Management
1989-1992	Southern Methodist University, Dallas, TX Assistant Professor of Information Technology and Operations Management
1984-1989	University of Arizona, Tucson, AZ Graduate Teaching Assistant in Management Information Systems
1983-1984	Washington State University, Pullman, WA Graduate Teaching Assistant in Mathematics
1980-1983	Mills Mutual Insurance Company Coding and Rating Supervisor

CONTACT INFORMATION:

Department of Business
Mesa State College
Houston Hall, Room 106D
1100 North Avenue
Grand Junction, CO 81501-3122

Phone: 970.248.1425
Email: mwinnifo@mesastate.edu
FAX: 970-248-1730

PRINCIPAL ONGOING COLLEGIATE ACTIVITIES:

Member, MSC Business Department's Retention Committee.
Member, MSC Computer Information Systems area committees.

PROFESSIONAL AND ACADEMIC ASSOCIATION MEMBERSHIPS:

Mountain Plains Management Association, member, reviewer, presenter.
Information Technology Service Management forum, member.
Help Desk Institute, member.
Association for Information Technology Professionals, member and co-sponsor of student chapter of AITP at Mesa State.
Western Decisions Sciences Institute, member and conference attendant.

PRINCIPAL ONGOING RESEARCH:

Information Technology Service Management (ITSM) and the IT Infrastructure Library (ITIL): examining current ITSM state-of-the-art in business and increasing the awareness of ITSM and ITIL in Information Systems education. 2000-present.

Exploration of motivation and "fit" among information technology workers, Information Systems majors, and the general workforce. 2006-present.

Prior knowledge and learning in personal productivity applications (Microsoft Office) in college students. 2007-present.

COURSES TAUGHT:

CISB at Mesa State College:

100 Basic Computer Skills
(Computer literacy and MS Office)
101 Business Information Technology
210 Fundamentals of Information Systems
331 Advanced Business Programming

Taught Elsewhere

Systems Analysis
Systems Design
COBOL programming
Executive Information Systems
MBA-level Management Information Systems
Database Management Systems
Operations Management
Electronic Commerce

SCHOLARSHIP

BOOKS AND CHAPTERS:

Sturm, R., Winniford, M.A. and Erickson-Harris, L. Service Level Management Solutions: A Buyer's Guide, third edition. Enterprise Management Associates, 2004.

REFEREED JOURNAL ARTICLES:

Winniford, M.A., Conger, S. and Erickson-Harris, L. (2007, forthcoming) Exploring IT Service Management State of the Art through Service Level Management, submitted September 2007 to *Communications of the ACM*.

Sobol, M. and Winniford, M.A. (2000) Factors Affecting the User, Adoption, and Satisfaction with Groupware. *Informatica*, v24, n2 (June 2000), pp. 175-185.

Yellen, R.E., Winniford, M.A. and Richards, T. (1998) Non-skill Attributes of Information Systems Professionals in an Integrated CASE Environment. *International Journal of Computer and Engineering Management*, v6, n1 (1998), pp 19-30.

Yellen, R.E., Winniford, M.A. and Sanford, C.C. (1995) Extraversion and introversion in electronically-supported meetings, *Information and Management*, v.28 n.1, (January 1995) p.63-74.

Wild, R. and Winniford, M.A. (1993) A Remote Group Collaboration Project Among Students Using Electronic Mail, *Computers and Education: An International Journal*, v21, n3 (October 1993).

CONFERENCE AND PROCEEDINGS PAPERS:

Carpenter, D.A., Slauson, G.J., Snyder, J., and Winniford, M.A. (2007, forthcoming) Motivating and Managing Computer Personnel in the 21st Century: Expanding the pilot study. *Proceedings of the Mountain Plains Management Conference*. [Kearney, NE, October 2007.]

Winniford, M.A. (2007, forthcoming) A Survey of Student Mastery of Computer Skills: Pretest of Ability. *Proceedings of the Mountain Plains Management Conference*. [Kearney, NE, October 2007.]

Winniford, M.A. (2006) The IT Infrastructure Library and ISO20000: An Organizing Principle for CIS Education. *Proceedings of the Mountain Plains Management Conference* [Orem, UT, October 2006].

Apte, U. and Winniford, M.A. (1992) Global Outsourcing of Information Systems Functions: Opportunities and Challenges. *Proceedings of the Information Resources Management Association*, **Best Paper Award**.

Winniford, M.A. (1991) Issues in Automated Voting, *Proceedings of the Hawaii International Conference of Systems Sciences* [Hilo, HI, January 1991]

INVITED PRESENTATIONS:

December 1993 “The Future of Information Systems Education.” Presented to the TexIS Conference, Denton, TX.

MANUSCRIPTS REVIEWED:

2007-Present Reviewer for Mountain Plains Management Association Conferences.

2007-Present Reviewer for Journal of Information Systems Education.

COLLEGIATE SERVICE ACTIVITIES

Regular participant in SOAR counseling activities (Winter 2006, Spring 2007, Summer 2007).

COMMUNITY SERVICE ACTIVITIES

Consulted to Enterprise Management Associates to develop, administer, and analyze a survey on delivering application services in a networked environment (Sept 2006).

Developed (pro bono) database for membership for church in Boulder (Spring 2001).

Other Community Activities:

Volunteer for March of Dimes (May 2007), Adopt-A-Family (Dec 2006), Can Drive representing Mesa State College (Dec 2006).

Religious Education Counsel, chair and member, RE class teacher, Denver, Boulder and Grand Junction, CO (2000-present)

Choir member in Aster Women’s Choir, Broomfield, CO (2001-2004).

External Program Review

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This review is organized around the aspects of the program identified in the *Program Review Elements*. Since there is an interest in pursuing ABET accreditation, an effort will also be made to reference the *Criteria for Accrediting Information Systems Programs* published by ABET.

Role and Mission – Goals, Objectives, and Outcomes

The *Mesa State Catalog* identifies Mesa State College as a “comprehensive coeducational institution.” Per the *Catalog*, the College’s mission states that it “... shall be a general baccalaureate and specialized graduate institution with moderately selective admissions. Mesa State College shall offer liberal arts and sciences programs and a limited number of professional, technical, and graduate programs. Mesa State College shall also maintain a community college role and mission, including vocational and technical programs.”

The Computer Information Systems program has a clearly articulated mission statement that in many respects mirrors the strategic mission goals of the College (as they are published at [http://www.mesastate.edu/president/files/Strategic Plan.pdf](http://www.mesastate.edu/president/files/Strategic%20Plan.pdf), p. 21.) The statement emphasizes the delivery of a program that will include “... a broad business and real world perspective.... strong analytical and creative thinking skills, ethical standards, interpersonal, written and oral communications, and team building skills...” The curriculum is designed to prepare students for careers in which they will have the skills to “... function independently in an entry level position in information systems and have a strong foundation for continued learning and career growth.” In addition to the undergraduate major, the Department of Business endeavors to serve the larger community by offering a BAS in Computer Information Systems, an AA in Business Computer Information Systems, and a minor in information systems, service courses in information systems for students in the Department of Business, and applied information systems courses for students college-wide.

The program utilizes two mechanisms to fulfill its mission by working in partnership with the community at large. First, it has an advisory board consisting of representatives from the IS/IT field in that geographic area. Secondly, faculty have conducted and published research focused on the educational needs of IT professionals and organizations. These efforts are designed to ensure that the curriculum is current, and is meeting the needs of those served by the Information Systems program, the Department of Business, and the College.

In addition to a well articulated mission statement, ABET requires that the program has documented educational objectives that are consistent with the mission of the institution. The *Catalog* does not provide such information about the program.

The CIS web site identifies a “knowledge and skill set” the program intends to develop in its graduates (<http://www.mesastate.edu/schools/sbps/cis/index.htm>.)

These are:

- an understanding of the role information systems play in organizations,
- the technical competence suitable to analyze business problems from an Information Systems perspective,
- the opportunity to design and build information systems,
- the fundamentals of business administration.

It also provides some job titles for graduates of Computer Information Systems.

The *Petition/Program Sheet for Bachelor of Science: Computer Information Systems*, last revised on 5/11/2007, lists a set of possible occupations and some student requirements for CIS studies.

In the assessment part of the Program Review Self Study document (in *E. Effectiveness* section) there are a set of program outcomes that are reviewed and assessed on a regular basis. It is not clear how they are related to the program goals listed in *B. Program Goals and Objectives* section of the Program Review Self Study. There is too much overlapping to treat them differently and there are several differences to consider them to be the same.

Conclusions: There is no evidence to suggest the program is inconsistent with the role and mission of Mesa State College. To the contrary, the program’s mission mirrors the mission of the College, and provides support for its fulfillment from a CIS perspective. Additionally, there is evidence the program makes every effort to ensure that it is meeting the needs of the area’s IT community.

To evaluate the program for ABET readiness some explanation and understanding is needed regarding the working language. In the *Criteria for Accrediting Information Systems Programs* publication, ABET states that for accreditation considerations

“The program has documented, measurable educational objectives that are based on the needs of the program’s constituencies.”

“The program has documented, measurable outcomes that are based on the needs of the program’s constituencies.”

ABET defines objectives as “... broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve” and provide an understanding about how the program envisions individuals in their field who received a CIS degree from this institution. In that sense the statement refers to ‘graduates’.

The outcomes are “... narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire in their matriculation through the program.” In that sense they are related to ‘graduating students’.

With respect to ABET expectations, the program does have documented educational statements that are fairly well defined, and are consistent with the requirements of a modern information systems program – but they need to be separated into *objectives* and *outcomes*. The Fall 2006 CIS mission statement can be used as a basis for these efforts. The program has to develop, document, and publish program objectives that are aligned with the college’s strategic plans. Most of the CIS goals compiled in the above mentioned departmental document can be converted to outcomes that have to accompany the program objectives. The listed knowledge and skill set should be reviewed, restructured, and improved – harmonized with the outcomes that are obviously already assessed. They also should be published – the reviewer was not able to find the referenced mission statement or the assessed objectives in official college documents (including the *Catalog* and the college’s web site – the self study report, since it is not available to the general audience, does not count!)

Recommendations: The CIS program needs to review the program goals. To be better prepared for an intended ABET accreditation, faculty has to develop, document, and publish program objectives (that are measurable), and program outcomes (that are measurable) “that are based on the needs of the program’s constituencies.”

To demonstrate that the educational objectives of the program are consistent with the mission of the institution, the CIS group may wish to develop a table linking the major components of the College mission statement with the program mission and objectives. They also have to be aligned with those ones of the Department of Business that houses the CIS program.

For example, the table may look like the following:

Mesa State Mission	CIS Program Mission	IS Program Educational Objectives
Accessible education	Accessible undergraduate business information systems education	
High quality education	High quality undergraduate business information systems education	<ul style="list-style-type: none"> - ability to design and implement information systems solutions - etc.

Mesa State Mission	CIS Program Mission	IS Program Educational Objectives
Prepare students for careers	Equip the student with the skills necessary to function independently in an entry level position in IS	<ul style="list-style-type: none"> - strong analytical and creative thinking skills - etc.
	Strong foundation for continued learning and career growth.	<ul style="list-style-type: none"> - business and real world perspective - team building skills - etc.
etc.	etc.	etc.

The next step would be to identify which program objectives are supported by which program outcomes.

Analysis of Need for the Program

The Department of Business and the CIS faculty – embracing Mesa State's vision of Achieving a Higher Degree – wants to align the computer information systems curriculum for ABET accreditation and wants to receive professional validation that the program meets higher standards.

It would seem that the primary issue with respect to the need for the program and the CIS curriculum relates to the identity of the program.

The Department of Business, faculty, and CIS students seem to be clear on the fact that the focus of the CIS program is on the application of technology in meeting the information needs of today's businesses and organizations. It is not evident, however, that others at the College know, recognize, and appreciate the role and efforts of the Computer Information Systems program.

In *Appendix I.vi* of the Self Study report, pages 59-61 include the list of ABET 2007-2008 evaluation criteria. Since the Department is aiming for accreditation around 2012, and since ABET has revised its review process for engineering, science, and computing programs starting with the 2008-2009 evaluation period, the reviewer used the new guidelines to point out issues for possible improvements. A detailed analysis is attached to the end of this review document.

In general, the evaluation criteria states that “The program’s requirements are consistent with its educational objectives and are designed in such a way that each of the program outcomes can be achieved. The curriculum combines technical and professional requirements with general education requirements and electives to prepare students for a professional career and further study in the computing discipline associated with the program, and for functioning in modern society. The technical and professional requirements include at least one year of up-to-date coverage of fundamental and advanced topics in the computing discipline associated with the program. In addition, the program includes mathematics appropriate to the discipline beyond the precalculus level. For each course in the major required of all students, its content, expected performance criteria, and place in the overall program of study are published.”

Conclusions: The CIS program is a clearly articulated program in Information Systems, as defined in the *Computing Curricula 2005* and outlined in the ABET requirements for the accreditation of information systems programs. The program is visibly focused on the application of technology in meeting the information needs of today's businesses and organizations. Its identity and course offerings are dedicated to the production of graduates, who will be able to successfully analyze and specify the information systems

requirements of organizations, as well as design and implement the systems needed to meet the identified technology and business requirements.

While the productivity of the Computer Information Systems program has declined, this is completely consistent with a nationwide trend. Literature tells us there has been anywhere from a 25% to 35% decline in enrollment in computer-related programs of study across the nation. Some programs have actually reported as much as a 50% decline. It is generally accepted that this is primarily in response to the burst of the dot com bubble and to an increasing interest in outsourcing of technology positions.

Recent reports from the U.S. Department of Labor provide reason to hope the downward trend is beginning to turn around. These reports predict an increase in the number of technology related positions in the next years which are "... expected to grow much faster than the average for all occupations through the year 2014 as organizations continue to adopt and integrate increasingly sophisticated technologies.

Job increases will be driven by very rapid growth in computer system design and related services, which are projected to be among the fastest growing industries in the U.S. economy.

In addition, many job openings will arise annually from the need to replace workers who move into managerial positions or other occupations or who leave the labor force.

Job growth will not be as rapid as during the previous decade, however, as the information technology sector begins to mature and as routine work is increasingly outsourced to lower-wage foreign countries."

Recommendations: Decline in CIS majors since 2003 shows the need for increased student recruitment efforts by faculty. The program and the Department have to be active in directing more attention to the CIS area, providing information materials to college admissions, and advising and promoting the profession to students and the business community. Open houses, major fairs, information sessions, alumni connections, high-school recruiting, internships and other business relation building events can be used as vehicles for these efforts. While the creation of BAS in CIS can (and hopefully will) add FTEs to the Department, it is not clear how that possible increase in enrollment will impact the BS in CIS program. It is a different degree, a different program with different requirements.

Average class size is reported to be fairly low, which provides the opportunity for good interaction between faculty and students. This is probably the one area in which computing related programs are benefiting from the decline in enrollments. Classes are now down to more reasonable sizes. Faculty members have a better chance of getting to know their students and of providing more personalized, more effective instruction. In fact, students interviewed at Mesa State were very satisfied with the opportunities they have to interact

with their instructors. They reported their instructors were available and easy to get in touch with, if they desired additional help on class work or assignments.

Regardless of how enrollment numbers evolve, ABET accreditation seeks to accredit programs not departments – the program has to regroup, find new opportunities, advance, and prosper. Connected to the College’s Achieving a Higher Degree strategy, faculty has to develop and execute a detailed action plan that has also elements addressing enrollment and retention issues.

Curriculum

Required Courses for the CIS Major

The detailed review identified some inconsistencies in the program requirements, course listings, and prerequisite enforcements.

- In the provided College catalog (2007-2008), the required course listing (p. 56) mentions CISB 260 Information Systems Architecture as a possible alternative. The course description section of the same catalog (p. 105) does not provide any information about the course.
- The required course listing (p. 56) includes TECI 260 IT Hardware & Systems Software which has a prerequisite course of TECI 132 Introduction to IT Hardware & Systems Software (which does not have a course description – p. 157.) This is a hidden prerequisite in the program and costs credit hours to the students. It was stated that this prerequisite is waived for CIS students which represents an integrity issue. A prerequisite should be enforced if the course proposal went through the curriculum process and is documented in the *Catalog*, or should not exist if it is not necessary. It is not clear how the waiver is administered. There is no evidence or screening that students who come to the CIS program have the knowledge and the assumed skills to succeed in TECI 260.

Recommendations: Program requirements, required course listing, and prerequisite requirements (including enforcement or documented screening and/or waiver) have to be clarified and if necessary, modified. For program quality purposes, CIS faculty should ensure that students who graduate with a CIS degree assume the same set of requirements. It is also highly important that students receive valid information about courses and the degree.

Required Business Support Courses

The detailed review identified some inconsistencies in the program requirements, course listings, and prerequisite enforcements.

- CISB 101 Business Information Technology is a prerequisite of ACCT 202 Principles of Managerial Accounting (along with ACCT 201 Principles of Financial Accounting). This is a hidden prerequisite in the program and costs credit hours to the students. It was stated that this prerequisite is waived for CIS students which represents an integrity issue. A prerequisite should be enforced if the course proposal went through the curriculum process and is documented in the catalog, or should not exist if it is not necessary. It is not clear how the waiver is administered. Since ACCT 201 does not have any prerequisites, students can take it any time, so there is no guarantee that by

the time they register for ACCT 202 they have the assumed computer skills and knowledge.

- FINA 301 Managerial Finance course description (p. 124) lists ACCT 202 Principles of Managerial Accounting and STAT 214 as prerequisites. The STAT 214 course does not exist in the catalog.

Recommendations: Program requirements, required course listing, and prerequisite requirements (including enforcement or documented screening and/or waiver) have to be clarified and if necessary, modified. For program quality purposes, CIS faculty should ensure that students who graduate with a CIS degree assume the same set of requirements. It is also highly important that students receive valid information about courses and the degree.

Additional Requirements – Communication Skills

ABET requires that oral and written communication skills of the student must be developed and applied in the program. Program evaluators will look to the syllabi for evidence that this requirement is satisfied (it is listed as an objective or outcome, it is measurable, and is assessed in the course). Currently, a good number of the syllabi indicate written communication skills will be required to successfully complete course assignments. The need for oral communication skills is also obvious in some cases. While ENGL 111 and ENGL 112 can be considered as courses where students develop writing and composition skills, there is no immediate evidence to show where oral communication skill are developed – thus students have to apply such presentation skills in major courses. If presentations are required, they should be clearly identified in the syllabi. There should be opportunities to develop such skills before they can be applied in courses. The Department should also make sure that courses which are required of all students in the program contain these requirements. It would not be desirable for students to complete the program without having demonstrated these skills.

Additional Requirements – Global-Social issues, Teamwork

The curriculum must contain sufficient coverage of global, economic, social, and ethical implications of computing to give students an understanding of a broad range of issues in these areas. Of particular interest to program evaluators is the area of ethics. While all students are required to complete courses where course objectives contained references to ethical behavior and ethical implications, it is not obvious where that knowledge was coming from. This will need to be rectified, prior to an ABET visit. Introduction of ethics related to the computing field must be a component of at least some of the courses in the program that all students are required to take.

ABET is also interested in the development and application of collaborative skills in the program. Here, again, the syllabi will be expected to provide evidence that this requirement is being met. While some syllabi do mention that group projects are part of the course, it is likely they are part of other courses and they have just not been documented. As with oral communication skills, if courses require students to participate in group projects, that should be clearly identified on the syllabi.

Recommendations: Identify course work where computing related ethical standards are covered. Also, teaching of teamwork and group dynamics should go beyond watching a video and discussing the topic. They should be listed as objectives or outcomes, they should be measurable, and have to be assessed in the courses.

Additional Course Offerings

One of the questions posed during the visit dealt with whether there were topics the program should be covering. An examination of the course listing suggests several areas of emphasis that are currently not included in the curriculum. They could extend the breadth and depth of the CIS program and provide broader selection of electives. There appear to be courses in the areas of database, telecommunication and networking, but no offers in multimedia or web applications. In telecommunications and networking, an addition in information systems security would certainly be timely. The issue of capacity planning and performance evaluation is an important one in web-based or networked environments. A course on human factors would be a good supplement to existing courses related to systems design. Expert and decision support systems, as well as geographic information systems, are topics for courses that IS majors would find interesting.

While the primary focus of the course offering under the CISB prefix is the Computer Information Systems degree program, it also provides a quantitative decision making (management science) course. ABET accreditation seeks to accredit programs, not departments or prefixes, so offering statistics and/or management science courses does not present any problems. However, it might be advisable to secure a prefix other than CISB for such courses. It would help differentiate these courses from those that comprise the Computer Information Systems program.

Current Students and Alumni

Students expressed some concerns about the ever-changing nature of the curriculum and program requirements (course names and numbers, course sequence, prerequisites). They do not have a clear understanding of the nature and the driving force(s) behind those changes. They feel that the program has to stabilize to see that the actual set of courses

and the setup of the program are working before new courses, course numbers, and titles are introduced.

Alumni feel good about the program and the IS education. They appreciated the fact that in different courses they had to write several papers and had to do individual and group presentations. They feel that the program prepared them for most of the important skills that the industry demands: understanding the business environment, programming, networking, and “people-skills”.

They also expressed the desire to continue a professional relationship with the program and support its efforts. In that sense the alumni relations have to be revitalized. They are looking for help, students are looking for possible internship opportunities, and the Business Department/IS Group needs more exposure. Alumni would be willing to come back to the campus, share expertise, and help with the development of the program. These connections would help the IS program to establish a solid presence in the business community and attract more students to the College. Internship is good for the businesses so they can try out a possible employee without risk and serious commitment, but – if the candidate’s skill set meets their needs – with the possibility of converting the relationship into a permanent job.

Assessment

ABET requires that a program must have expected outcomes for graduating students. From the materials provided, it appears that some of the expected outcomes are a score on the *ICCP* and *MFT* tests.

The Department should be encouraged to continue to investigate the use of a standardized test developed by the Institute for Certification of Computing Professionals (ICCP) for college graduates in the field of Information Systems Analysts (ISA), to serve as one indicator of the expected outcomes of the program. A test like this, developed by an outside organization, would certainly serve to validate grades received in CISB courses, should the department continue to use it. It should be noted, however, that if testing is going to continue to be used as one of the primary indicators of program outcomes, some strategy needs to be developed to map the course and program outcomes to the different sections of the test, and to utilize the test results for course/program improvement. One of the benefits associated with an ICCP test is that there is some motivation for the students to take it and do well, as their performance could qualify them for the ISA Practitioner or Mastery Certification.

Student's subjective assessment on how well they were prepared, and their grades in CISB courses should continue to be used as measures of program outcomes. However, the Department may want to examine its curriculum for additional indicators. For example, in CISB 471, students are required to complete a formal design document and to defend their design in a formal presentation. Successful completion of these exercises would be good measures of the "oral and written communication using current technology" program objective. This course also requires a group project. If students are asked to provide an evaluation of their team members, a successful peer evaluation could be a measure of the "teamwork, organization, and management in information systems projects" program objective.

Documented processes have to be in place that show how, when, and what kind of data were collected, analyzed, what were the results, and how they were used to continuously improve the program's course offerings and content.

Other activities that could be packaged as components of the program assessment might include:

- Activities of the College's Office of Institutional Research, if they administer various institutional effectiveness instruments and collect, interpret, and disseminate information that can be used by the Department to facilitate informed decision-making, program evaluation, and the development of plans and policies.

- Any College and/or Department of Business required program reviews that can be used to demonstrate program quality is systematically and routinely evaluated.
- Activities of faculty student academic advisors that are designed to track and monitor student progress, to insure that program and College graduation requirements are met.
- Development and distribution of an *Advising Survey* which provides students an opportunity to assess the quality of academic advising they are receiving.
- Activities of internship programs that are designed to assess student preparation for the intern experience and evaluate their performance in placements.
- Distribution of an instrument designed to give students the opportunity to rate the instructor, course, and course materials upon completion of the course.
- Monitoring of part-time, visiting, and untenured faculty by the Department Chair or other members of the faculty, to insure the quality of instruction.
- Regular review and revision of the curriculum by a Department Curriculum Committee, as well as a process for faculty to introduce new course ideas.
- Collection of feedback from the Department's advisory board, particularly with respect to appropriate ways to structure curricula which meet industrial needs.
- Regular distribution and revision of the graduate survey that is designed to capture student opinions at the time of graduation.
- Alumni survey that reflects student experience from a perspective and can help to justify program objectives.
- Employer survey which provides valuable feedback about how the program prepares students for work in the industry.

Students

The data provided show a decline in almost all measures of program productivity. Number of majors, headcount, FTE, and number of graduates are some of the measures indicating a decline, beginning around 2003. According to the data, the program offered 70-75 classes during the spring and fall of 2003. The offering went back to 37 in spring 2007 which is a 47% decrease since 2003. Since no data were available showing student enrollments by course prefixes the number of business students was used as reference to overall enrollment indicator. During the same time period the enrollment decreased for all the business areas by 53%. The number of offerings is, therefore, not decreasing as rapidly as the enrollment. This would suggest that the Department continues to try to put together a schedule that provides the students with a good selection of CIS courses.

Students interviewed during the course of the visit perceive that most sections are offered between 9:00 a.m. and noon or between 1:00 p.m. and 3:00 p.m. So, while they think a good selection of courses are being offered, they believe there are time conflicts with other courses that prevent them from taking all of the courses they might like to take. The data do suggest that more courses are offered in the daytime than in the evening. The course offerings do, however, appear to be fairly well distributed during the day.

There is, however, one serious consequence of low enrollment. Several courses can be offered only every other semester. This fact can easily limit or prevent students from graduating in the desired time frame. These conflicts were emphasized by students in the graduate survey (60% of them rated course offerings less than 'good' or 'excellent'), where 18% of them suggested the lack of course offering was a major component of graduation delay. With published course offering and graduation plan, and strong advising the impact can be reduced, but this fact also calls for strong recruiting efforts.

Students interviewed during the visit did report that they were satisfied with the quality of the advising they received from the faculty. There is also data that seem to support faculty advising is working and working well. In the graduate survey 80% of students marked advising as 'good' or 'excellent'. Also, the graduation rate in the CIS program remains steady above 70%. Students obviously stay on track toward graduation and do not find they have taken an excessive number of courses that do not count toward their degree.

Of some concern is the fact that the program does not have an *Employer Survey* in place so employers of computer information systems graduates cannot rate their employees. This would be an important information source, and would serve as a major source for feedback and validation for the CIS program.

Conclusions: One of the ABET standards is “courses must be offered with sufficient frequency for students to complete their program in a timely manner.” Even in the face of declining enrollments, the Department does continue to offer a fairly comprehensive schedule of courses. Students, however, do perceive that the schedule includes time conflicts among desired courses. If, in fact, there are such conflicts, this probably results in students behaving in one of two ways. They take fewer courses per semester and slow their progress toward graduation, waiting to take just those courses they really want to take. Or, in order to stay on track toward graduation, they take whatever they can schedule and miss some courses in which they might really be interested. ABET also requires that “Information systems programs must be structured to ensure effective interaction between teaching faculty and students.” The relatively small class size maintained by the Department and the use of regular faculty to do academic advising seems to provide the necessary opportunity for interaction. Students report satisfaction with the opportunity to contact faculty outside of class time. They also report satisfaction with the quality of advising they receive. There does, therefore, seem to be fairly effective interaction between faculty and students.

“Advising on program completion, course selection and career opportunities must be available to all students,” according to ABET standards. It is clear this standard is met. Students report they are satisfied with the advising they receive. Additionally, productivity data indicate that advisors seem to be keeping students on track for graduation.

Recommendations: It is a given that scheduling is a problem without a solution. However, the Department may wish to look at its scheduling to see if the time conflicts students seem to think exist are a reality. If there are time conflicts that can be avoided, changes could increase enrollment during any given term, as students would be able to take more courses. Students might also be able to shorten the time needed to complete their degrees.

It would seem that to better position itself as a program that meets the needs of its constituents, the CIS program should explore the possibility (maybe with the help of the College or other interested departments) to establish an instrument that would allow the survey of the quality of the program and the performance of its graduates from an employer perspective.

Faculty

The Computer Information Systems Department currently is comprised of four regular, full-time, permanent faculty members, all of whom hold terminal degrees. The CIS program also uses three adjunct faculty members to teach lower division CISB courses.

Faculty workload includes teaching, professional development, and service. Standard teaching load appears to be four sections per semester. A review of teaching assignments indicates that it is not unusual for faculty to have three different preparations and, in some semesters, as many as four preparations. Professional development includes graduate study, completion of professional certifications, attendance at professional workshops and seminars, and publication of intellectual contributions.

The *2007 Program Review* also notes that faculty have conducted and published research focused on the educational needs of IT professionals and organizations. With respect to curriculum development, faculty reviewed and revised the CIS curriculum on a regular basis, and added/modified courses as needed.

Conclusions: All full-time, regular faculty members do hold terminal degrees. The Department will, however, have to deal with the ABET requirement that “Some full-time faculty, including those responsible for the IS curriculum development, hold a terminal degree in information systems.” One faculty member has PhD in MIS, one has MBA with MIS major (thus teaches not only CIS courses), one has a MBA, and one has PhD in Applied Math (and also teaches quantitative courses.)

Information in the respective resumes of the faculty supports the conclusion that the Department has a strong cadre of very productive and accomplished faculty. The amount of scholarship and the specific areas of inquiry of the faculty also seem to satisfy the requirement for faculty members to remain current in the discipline. It is remarkable the faculty is as productive as they are, given the heavy teaching load of four sections and three or more preparations.

Faculty needs continuous support to stay current. That includes research, professional development, conference attendance, seminars, and workshops. Considering the limitations in the available financial resources besides attending conferences they can also consider online opportunities to keep up with the field.

Recommendations: In a dynamic discipline such as computer information systems, where the technical content of courses often must change as frequently as every semester, every effort must be made to provide faculty with a reasonable course load. For a faculty member to be effective in the classroom, they need the time necessary to make sure the material

they are presenting is the most current. Four sections and three or more preparations is a very demanding schedule, particularly when the faculty must also attend to professional development and service expectations. The Department should explore the possibility of reducing the number of preparations.

Pursuit of ABET accreditation will raise questions about the academic preparation of the faculty. As noted above, in most cases an argument can be made that the faculty have at least the equivalent of the credentials ABET seeks. If there are faculty members who teach business and/or management science courses for the Department of Business, it would be advisable to exclude that percentage of their FTEs from the accreditation materials. ABET accreditation seeks to accredit programs not departments, so program reviewers will only be interested in the credentials of those faculty teaching courses in the Computer Information Systems program.

Resources/Institutional Support

The Tomlinson Library review materials indicate that CIS holdings include monographs, serials, reference materials, and Internet resources (databases, free websites and other electronic information available via the Internet.) Of the databases offered by the library, there are six that would be of particular interest to CIS students and faculty, including the *OmniFile*, *ArticleFirst*, and *Business Source Premier*.

The *MSC website* reports that on campus there are 5 computer laboratories available for use by all current students. In the Department of Business, there is a computer lab that “supports courses and activities requiring technology unavailable in the regular MSC computer labs. The lab has specialized hardware that allows multiple operating systems and software to be used on the machines. Additionally, faculty and staff appeared to have fairly current technology available to them in their offices and all classrooms appeared to be computer-ready.

The Department of Business currently is comprised of twenty-three regular, full-time, permanent faculty members. Support is provided by one full-time staff member, and work-study students who mainly help in the computer labs.

Conclusions: Library resources are more than adequate. Students have access to a variety of monographs, serials, and electronic resources. Of particular significance is the fact that students have access to some of the best CIS journals and online databases.

The *2007 Program Review* speaks to some issues with respect to computing equipment and equipment maintenance funding. The only specialized lab for information systems majors is the lab in the Department of Business. Other campus labs are, of course, configured to meet the computing needs of the average student and may not be able to support the specialized needs of the Computer Information Systems program.

As is the case on many college campuses, MSC does not appear to have a plan in place for funding computing needs from year-to-year. There does not seem to be a source of funds to provide for normal maintenance needs and for periodic replacement of old technology. Additionally, when funding is made available, it is at a level similar to other programs on campus that do not have specialized needs for higher-end computing.

Recommendations: One fairly small computing lab is sufficient to meet the specialized computing needs of the Computer Information Systems in the short term. When enrollments begin to grow again, additional dedicated space will be needed.

Funding of computing needs is a difficult problem. The need for being able to acquire the latest software can be met by establishing an endowment for software. A task for the Advisory Board would be to solicit the initial funding for the endowment. The return from a fairly modest endowment will go a long way toward giving the Department the funding they need. Maintaining and periodically replacing equipment will require a commitment from the College.

Vision

In addition to the Computer Information Systems bachelors degree program, the Department offers services courses. The 1000-level computer literacy courses are available to all Mesa State students.

In today's world, all Business majors could benefit from an understanding of information systems and the role of such systems in an organization. While the Department does offer service courses to other majors, these courses are not designed to provide the student with an appreciation for how information systems pervade the organization, cutting across all functional and departmental lines. A course like CISB 210 Fundamentals of Information Systems would be a good candidate to provide all business majors with an overview and understanding of business information systems.

The CIS area needs individuals who have not only a broad understanding of technology but are specialists in a particular field. Combining a set of existing courses into concentrations or certificates students can get additional help from the program towards their careers. Some of these areas could be:

- Network specialists
- Programmer/system analysts
- Database specialists
- End user support professionals

These concentrations or certificate programs can be designed for:

- Current IS majors seeking in-depth specialization in a particular area of study
- Current non-IS majors seeking to complement their major with an IS program of study
- Those with at least a bachelors degree seeking to come back and pursue an IS program of study

There is a real opportunity to provide a service to non-IS majors, particularly those who are business majors (accounting, business administration.) A study should be conducted to determine the extent to which these students can take advantage of the certificate programs. If students are shying away from these programs, it might be that the prerequisite structure is such that pursuing one of these programs requires too many extra courses. Another possibility is non-IS majors may not be comfortable in courses populated primarily by IS majors. The Department may wish to consider developing a set of courses specifically for non-majors, courses that would have no prerequisites and could not be taken by CIS majors.

Examples could be the Nursing program that has increased IS requirements mandated by federal regulations like HIPPA; Administrative Office Technology where data handling calls for understanding of information systems process and security. There might be an opportunity for the whole department offering a bachelor-level entrepreneurship program/certificate with existing accounting, management, and CIS courses. There could be opportunities in supporting local governments in IS tasks (office administration, GIS).

Enrollment data show that about 25% of students who take courses at the bachelor level ([http://www.mesastate.edu/staff/instresearch/0206 Fall Enrollments by degree program.pdf](http://www.mesastate.edu/staff/instresearch/0206%20Fall%20Enrollments%20by%20degree%20program.pdf)) do not have a declared major. These students are already here, they just have to be approached by the Department or the program.

There are opportunities in offering course sections online. The College has a working learning management system that can provide the framework for that. It does not require additional space or faculty hiring – and converting an existing course for online delivery could be acknowledged as PD for faculty.

Some additional issues:

<p><i>Strength</i></p> <ul style="list-style-type: none"> • students • faculty • alumni • working & educational conditions 	<p><i>Weaknesses</i></p> <ul style="list-style-type: none"> • technology supporting costs for IS • perceived (and not corrected) not-so-positive reputation of the IS field • need for continuous faculty development and training • local industrial trends
<p><i>Opportunities</i></p> <ul style="list-style-type: none"> • IS needs for organizations/businesses • national trends for increased IT tasks • development of concentrations or certificates • online course offering • service courses for business and other students 	<p><i>Threats</i></p> <ul style="list-style-type: none"> • budget challenges • changes in the College’s priorities • continued low enrollment

External Program Review – Computer Information Systems

Data show that Colorado will need additional information systems professionals both in the short and long term:

Short Term Occupational Employment Projections in Colorado for a base year of 2006 and a projected year of 2008				
Occupational Title	2006 Estimated Employment	2008 Projected Employment	Total 2006- 2008 Employment Change	Total Annual Avg. Percent Change
Computer Specialists	80,938	87,740	6,802	4.1
Computer Specialists, All Other	6,233	6,483	250	2
Computer Support Specialists	14,346	15,285	939	3.2
Computer Systems Analysts	12,156	13,233	1,077	4.3
Database Administrators	2,431	2,661	230	4.6
Network and Computer Systems Administrators	7,268	7,964	696	4.7
Network Systems and Data Communications Analysts	6,424	7,252	828	6.2

Source: Colorado Department of Labor and Employment

Even more:

Occupational Employment Projections in Colorado					
Occupational Title	2005 Estimated Employment	2015 Projected Employment	Total 2005- 2015 Employment Change	Annual Avg. Percent Change	Total Percent Change
Computer Specialists	79,649	114,696	35,047	3.7	44
Computer Specialists, All Other	6,267	7,759	1,492	2.2	23.8
Computer Support Specialists	14,042	18,903	4,861	3	34.6
Computer Systems Analysts	11,946	17,218	5,272	3.7	44.1
Database Administrators	2,383	3,529	1,146	4	48.1
Network and Computer Systems Administrators	7,107	10,758	3,651	4.2	51.4
Network Systems and Data Communications Analysts	6,354	10,510	4,156	5.2	65.4

Source: Colorado Department of Labor and Employment

The Department of Labor states about IS related jobs:

- Rapid job growth is projected over the 2004-14 period.
- There are many paths of entry to these occupations.
- Job prospects should be best for college graduates who are up to date with the latest skills and technologies; certifications and practical experience are essential for persons without degrees.

“All organizations rely on computer and information technology to conduct business and operate more efficiently. The rapid spread of technology across all industries has generated a need for highly trained workers to help organizations incorporate new technologies. In the last decade, computers have become an integral part of everyday life, used for a variety of reasons at home, in the workplace, and at schools. Of course, almost every computer user encounters a problem occasionally, whether it is the disaster of a crashing hard drive or the annoyance of a forgotten password. The explosive use of computers has created a high demand for specialists to provide advice to users, as well as for day-to-day administration, maintenance, and support of computer systems and networks.”

Appendix

Criteria for Accrediting Computing Programs

Effective for
Optional Evaluations¹
During the 2008-2009 Accreditation Cycle
And
All Evaluations
During the 2009-2010 Accreditation Cycle

GENERAL CRITERIA

Criterion 1. Students

Students can complete the program in a reasonable amount of time. They have ample opportunity to interact with their instructors. Students are offered timely advising, by qualified individuals, about the program's requirements and their career alternatives. Students who graduate from the program meet all program requirements.

The Scheduling of courses is a hard topic since enrollment numbers do not allow room to offer more than one section of the major courses, and some courses have to be rotated between semesters. The Department has to make a case about how planning, advising, and published schedules can help students advance in a reasonable manner.

Students reported good connections with faculty emphasizing that they have ample opportunity to receive advising.

Errors in College publications have to be corrected.

The Banner system can help check whether students meet the program graduation requirements. But there are known issues with Banner that need closer attention.

ABET will request 10 transcripts to be submitted with the self-study report that should indicate the students met ALL the program requirements (including prerequisites!).

Criterion 2. Program Educational Objectives

The program has documented, measurable educational objectives that are based on the needs of the program's constituencies.

See Curriculum section of the review. They need to be cleaned up, documented, and published to students. Several measuring instruments that provide direct and indirect indicators on how the objectives are fulfilled have

¹ All programs seeking initial accreditation must be evaluated under these Criteria.

to be in place. Those program objectives have to be aligned with the College and the business educational objectives, and have to be supported by course objectives. They have to be measurable, they have to be measured, analyzed, and revised on a regular basis.

Criterion 3. Program Outcomes

The program has documented, measurable outcomes that are based on the needs of the program's constituencies.

The program enables students to achieve, by the time of graduation:

- (a) An ability to apply knowledge of computing and mathematics appropriate to the discipline
- (b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- (c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- (d) An ability to function effectively on teams to accomplish a common goal
- (e) An understanding of professional, ethical, legal, security and social issues and responsibilities
- (f) An ability to communicate effectively with a range of audiences
- (g) An ability to analyze the local and global impact of computing on individuals, organizations, and society
- (h) Recognition of the need for and an ability to engage in continuing professional development
- (i) An ability to use current techniques, skills, and tools necessary for computing practice.

See Curriculum section of the review. They need to be cleaned up, documented, and published to students. Several measuring instruments which provide direct and indirect indicators on how the outcomes are accomplished have to be in place. Those program outcomes have to be aligned with the College and the business educational outcomes, and have to be supported by courses. They have to be measurable, they have to be measured, analyzed, and revised on a regular basis.

Criterion 4. Continuous Improvement

The program uses a documented process incorporating relevant data to regularly assess its program educational objectives and program outcomes, and to evaluate the extent to which they are being met. The results of the evaluations are documented and used to effect continuous improvement of the program through a documented plan.

Data sources have to be identified, planned, documented assessment methods need to be in place, data collection, analysis, and documentation should support curriculum and program changes. Some already work, others have to be established and developed.

Criterion 5. Curriculum

The program's requirements are consistent with its educational objectives and are designed in such a way that each of the program outcomes can be achieved. The curriculum combines technical and professional requirements with general education requirements and electives to prepare students for a professional career and further study in the computing discipline associated with the program, and for functioning in modern society. The technical and professional requirements include at least one year of up-to-date coverage of fundamental and advanced topics in the computing discipline associated with the program. In addition, the program includes mathematics appropriate to the discipline beyond the precalculus level. For each course in the major required of all students, its content, expected performance criteria, and place in the overall program of study are published.

*Bachelor of Science in Computer Information Systems****Degree Requirements***

<i>General Education</i>	<i>(31 credit hours)</i>
<i>B.S. Degree Distinction</i>	
<i>STAT 200 Probability & Statistics</i>	<i>(3 credit hours)</i>
<i>Humanities or Social & Behavioral Sciences</i>	<i>(3 credit hours)</i>
<i>Wellness (Kinesiology) Requirement</i>	<i>(3 credit hours)</i>
<i>Applied Studies</i>	<i>(3 credit hours)</i>

Required Courses *(33 credit hours)*

CISB 205 Advanced Business Software
CISB 210 Fundamentals of Information Systems
CISB 331 Advanced Business Programming
CISB 392 Information Systems Theory & Practice
CISB 400 Data Communications & Network Management
CISB 442 Systems Analysis & Design
CISB 451 Database Administration
CISB 460 Electronic Commerce Systems
CISB 471 Advanced Information Systems
CSCI 110 Beginning Programming
TECI 260 IT Hardware & System Software
or CISB 260 Information Systems Architecture

Business Support Courses *(27 credit hours)*

ACCT 201 Principles of Financial Accounting
ACCT 202 Principles of Managerial Accounting
BUGB 349 Legal Environment of Business
ECON 201 Principles of Macroeconomics
ECON 202 Principles of Microeconomics
FINA 301 Managerial Finance

MANG 201 Principles of Management
MANG 341 Quantitative Decision Making
or CISB 341 Quantitative Decision Making
MARK 231 Principles of Marketing
Electives (18 credit hours, 10 must be upper division) (18 credit hours)

121 credit hours
MATH 121 Calculus for Business is required

As it is stated in the Program Review, published and correct curriculum documentation is needed. The program also should provide a chart to the students that gives an overview of the CIS program, and shows the course connections and relationships.

The Catalog has to be correct and precise regarding the course descriptions and prerequisites. All courses that are required have to be in the Catalog.

Criterion 6. Faculty

A. Faculty Qualifications

Faculty members teaching in the program are current and active in the associated computing discipline. They each have the educational backgrounds or expertise consistent with their expected contributions to the program. Each has a level of competence that normally would be obtained through graduate work in the discipline, relevant experience, or relevant scholarship. Collectively, they have the technical breadth and depth necessary to support the program.

A review of the vitae provided suggests that faculty do try to remain current. Some of the outlets for scholarship seem to be away from mainstream IS journals. However, there is evidence of currency. Additionally, a review of the material actually taught in the sections demonstrates that the faculty were maintaining currency.

Faculty are expected to teach four sections per semester. Previously ABET has stated in its "Guidelines for evaluating the criteria" that faculty should not teach more than 12 hours and those teaching 12 hours should only have two preparations. In the new framework, this requirement was not spelled out but evaluators still look at the teaching load and the number of different courses a particular faculty member teaches. It is not clear if the department will be able to follow this not strict, but recommended guideline. Most faculty teach four courses and many teach more than two preps. It is difficult to make a convincing argument that adequate support for scholarship and faculty development is provided when faculty have such high teaching loads – even if the primary goal of the College is teaching and the highest weight on faculty evaluation is assigned to this activity.

B. Faculty Size and Workload

There are enough full-time faculty members to provide continuity, oversight, and stability, to cover the curriculum reasonably, and to allow an appropriate mix of teaching, professional development, scholarly activities, and service for each faculty member. The faculty assigned to the program has appropriate authority for the creation, delivery, evaluation, and modification of the program, and the responsibility for the consistency and quality of its courses.

Most sections offered were taught by full-time faculty. Also, as this is the only program offered, the full-time faculty are primarily committed to this program.

There seemed to be a curriculum committee responsible for control of the content of the CIS courses. There is a college level curriculum process in place where proposals are initiated by the departments. The approval process coordinates between different constituents.

Based on scheduling information available to me it appeared that full-time faculty taught most of the classes.

The department and the College clearly are committed to advising. The faculty seem to embrace this part of their responsibilities and during my discussion with faculty it was clear that advising was a recognized part of their duties.

Criterion 7. Facilities

Institutional facilities including the library, other electronic information retrieval systems, computer networks, classrooms, and offices are adequate to support the educational objectives and outcomes of the program.

Computing resources are available, accessible, systematically maintained and upgraded, and otherwise adequately supported to enable students to achieve the program's outcomes and to support faculty teaching needs and scholarly activities. Students and faculty members receive appropriate guidance regarding the computing resources and laboratories available to the program.

The IT Department feels the pressure to offer more and more reliable services to an extended user population that has lots of demands and requests. Since computer technology is not cheap and it changes very fast, more financial support would be always welcome. The computer facilities at MSC are centrally controlled but well organized. The faculty were positive about the responsiveness and quality of service provided by the central computing software. This includes installation of both server and client-side software.

It appears that necessary program documentation is available.

Faculty offices are well equipped and control policies permit a great deal of access for faculty on the network. Additionally, the department has a number of academic alliances which permit faculty and students access to new and important software.

The Library, which has been able to enhance the quality and quantity of its holdings, also serves graduate students. New resources are added – mostly in electronic format.

The classrooms that the faculty in CIS were using had network connections, display panels, computers, etc. They seem to be well equipped.

Faculty offices seemed to be around 100+ square feet, with most having outside windows. The offices were separate from the main traffic corridor and thus created an atmosphere conducive to faculty collaboration and communication. The setup will improve with the new building that is recently under construction.

Criterion 8. Support

The institution's support for the program and the financial resources available to the program are sufficient to attract and retain qualified faculty members, administer the program effectively, acquire and maintain computing resources and laboratories, and otherwise provide an environment in which the program can achieve its educational objectives and outcomes. Support and resources are sufficient to provide assurance that the program will retain its strength throughout the period of accreditation.

It did not seem that compensation was much different from other four year universities. The faculty did not seem to feel that salaries were low relative to faculty salaries at other universities.

Faculty seem to have opportunities to travel for research and development. The chair clearly understood the importance of this and seemed supportive. There also seemed to be funding provided to the department to support these activities.

Like other schools of business, MSC clearly identifies service, teaching and scholarship in its reward structure. I would, however, encourage better documentation of the roles and the reward system. It was clear from discussions with faculty that support and recognition of scholarly activities was provided, but I could not find it formalized.

I found one administrative assistant and two or more student assistants available to the department. This seemed reasonable for the size of the department.

The chair of the department has release time for administrative purposes. This is similar to the release time often provided to department chairs.

It appears that upper administration is supportive of the department and the program. But there were questions at several meetings about the goals and reasons why the CIS program would seek accreditation, what would that mean for the College, the Department, and the program itself, and how it can be converted into higher enrollment numbers. The College (and also the program) needs to attract more students, but there is no direct relationship (at least not for the short term) between accreditation and enrollment increase.

The general facilities available to the students and faculty were quite impressive. Although not under the department's direct control, it was clear that the computing support unit was very effective in providing and maintaining laboratory facilities which easily meet the program needs for general computing. The department was building and maintaining a lab for CIS specific use. The number of seats in that lab is limited and can cause scheduling problems. A plan or agreement has to be developed to find additional resources for equipment replacement and major maintenance.

Criterion 9. Program Criteria

Each program must satisfy applicable Program Criteria (if any). Program Criteria provide -

the specificity needed for interpretation of the General Criteria as applicable to a given discipline.

These program criteria apply to computing programs using information systems or similar terms in their titles.

These are additional areas that are specific to IS programs. They are extensions to the general computing related evaluation requirements.

3. Program Outcomes

The program enables students to achieve, by the time of graduation:

- (j) An understanding of processes that support the delivery and management of information systems within a specific application environment. [IS]

The program has to develop the desired (and measurable) outcomes, align them with the objectives, and support them with (measurable) course outcomes.

5. Curriculum

Students have course work or an equivalent educational experience that includes:

- a. Information Systems: One year that includes:
 - 1. coverage of the fundamentals of a modern programming language, data management, networking and data communications, systems analysis and design and the role of Information Systems in organizations. [IS]

2. advanced coursework that builds on the fundamental coursework to provide depth. [IS]

Required CIS courses (30 credits.)

1. CSCI 110, CISB 451, CISB 400, CISB 260, CISB 392, CISB 210
2. CISB 205, CISB 331, CISB442, CISB 460, CISB 471

The CIS program has 33 credits in the required major courses. CISB 260 was listed as it could qualify for a fundamental systems course – TECI 260 does not seem to be enough for that. CISB 442 is not really covering fundamentals, it looks like a higher level course to be included in the first group. It can be argued that parts of CISB 210 and CISB 392 cover the basic systems analysis and IS role topics.

It is the decision of the faculty how they divide the offered courses into the basic and advanced categories.

- b. Information Systems Environment: One-half year of coursework that includes varied topics that provide background in an environment in which the information systems will be applied professionally. [IS]

These are the Business Support Courses (15 credits.)

The CIS program requires 27 credits of business courses.

- c. Quantitative analysis or methods including statistics. [IS]

STAT 200 and MANG341

6. Faculty

Some full-time faculty, including those responsible for the IS curriculum development, hold a terminal degree in information systems.

One faculty member has a PhD, one has an MBA with MIS major (thus teaches not only CIS courses), one has an MBA, and one has a PhD in Applied Math (and also teaches quantitative courses.)

The program has to make a case and show that they feel this is enough to develop and control the content of the CIS courses and their delivery.

References:**New ABET criteria that will be used in evaluations in 2009-2010**

<http://abet.org/Linked%20Documents-UPDATE/Criteria%20and%20PP/C001%2007-08%20CAC%20Criteria%208-8-07a.pdf>

ABET Self-study questionnaire (for 2009-2010 evaluation period)

<http://abet.org/Linked%20Documents-UPDATE/Program%20Docs/C003%20NEW%20Self-Study%20Questionnaire%208-3-07.doc>

Additional ABET documents

<http://www.abet.org> – Resources for programs – Download recent presentations

Computing Curricula 2005

http://www.acm.org/education/education/curric_vols/CC2005-March06Final.pdf

Occupational Outlook Handbook

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2006-07 Edition*

- Computer Support Specialists and Systems Administrators, on the Internet at <http://www.bls.gov/oco/ocos268.htm>
- Computer Systems Analysts, on the Internet at <http://www.bls.gov/oco/ocos287.htm>

ABET Workshops and Annual Meetings

<http://www.abet.org/presentations.shtml>

CIS Faculty's Response to the External Reviewer's Report
Bachelor of Science in Computer Information Systems at Mesa State College
December 3, 2007

The CIS faculty appreciates the professional efforts of Dr. Janos Fustos. His thorough and insightful report will be very valuable as the CIS faculty engages in its continuous improvement processes. The additional work Dr. Fustos undertook to examine the CIS program in light of future potential ABET accreditation is especially appreciated.

In the large part, the CIS faculty agrees with Dr. Fustos' findings, especially that the strengths of the CIS program are its students, faculty, alumni and working/educational conditions.

Inasmuch as national CIS enrollments are at the low point in the third ten year cycle, the CIS faculty recognizes the need for continuous recruiting to minimize the impact. In addition to recruiting majors, another important strategy for increasing CIS headcount is by expanding service to other disciplines. Plans are in place for both.

The CIS faculty also recognizes that other considerations for improvement are matters of either living into changes it has already made or making other minor adjustments.

The remainder of this document (below the signature block) includes several notes that refer to specific comments in Dr. Fustos' report. A few of those are exceptions the faculty takes with certain comments. Others briefly describe those actions the CIS faculty already has taken or has planned to address those areas to build on strengths and to overcome weaknesses of the program.

Respectfully submitted,
Computer Information Systems faculty

Page 4. The CIS faculty will better articulate linkages between MSC's mission and objectives and those of the CIS program. Logically this will be in the five-year assessment plan which will be submitted in December 2007.

Page 7. The CIS faculty in August 2007 created a plan for recruiting new majors and is poised to launch that plan following discussions with and approval by appropriate college administrators.

Pages 9-10. The program sheet and catalog corrections, which were primarily oversights, have been submitted early in November 2007 to the Curriculum Committee and will be entertained at the Committee's December meeting. Stated prerequisites to courses in the major are enforced.

Page 10-11. The CIS faculty will consider altering course objectives or will develop some other mechanism to clearly communicate the numerous places where communications skills, ethical standards and teamwork have been incorporated in CIS courses for several years. The faculty will also ensure that appropriate coverage is given to those topics. The faculty will consider developing a standard grading rubric for the instances where team projects are already included in CIS courses, including CISB 210, 392, 442, 451, 471 and others.

There appears to be an oversight regarding the perceived lack of multimedia or web applications as the existing class, CISB 460 Electronic Commerce Systems thoroughly covers those topics. Similarly, capacity planning is already a portion in CISB 400 and decision support is already covered in CISB 305 and will be included in the new CISB 306. Other topics mentioned, such as geographic information systems and multimedia, have been claimed by other MSC departments.

The CIS faculty recognizes the need to offer electives, particularly in topics that would attract both CIS and non-CIS students, such as systems security, human factors, expert systems, etc. However, doing so is a challenge for two reasons. The first is that the CIS faculty, as noted in the report, is spread thinly. It might be possible to create slots for electives in the class schedule by offering larger sections of CISB 210 after it has replaced CISB 101 in the BBA core in Fall 2009 (see comment for page 21), assuming approval by the Department of Business faculty.

The second reason that such courses are not offered is that there is no room for electives within the BS in CIS major. However, slots for two electives can be created easily if constructive changes occur to the college's degree distinction requirement for professional programs. That would provide opportunity to offer special topics courses to address leading edge concepts. The CIS faculty stands ready to take immediate advantage of that opportunity.

Since ABET accredits programs rather than prefixes, the CIS faculty sees no need to "secure a prefix other than CISB" for courses it teaches that are not in the BS in CIS. Using a single prefix for all courses is simpler and allows headcount to be reported on a single line of census reports.

Page 12. The CIS faculty will continue the efforts launched in Summer 2007 to strengthen alumni relationships and thereby create more internships for CIS students.

Page 13-14. The CIS assessment plan, which by recent changes is not due until fall 2008, has been adjusted in October 2007 to show all the additional assessment processes in which the CIS faculty engage. The plan will be submitted a year early to conform with the need for such a plan to have been in effect five years prior to the potential ABET accreditation review in Fall 2012.

Page 15-16. The CIS faculty will continue to maintain its quality student advising processes. It will also continue the efforts established in Spring 2007 to maintain closer relationships with and solicit feedback from employers.

There also appears to be a need to better communicate with students as to the sequencing of courses. While courses have been improved considerably over the five years of the BS in CIS, there only have been a few changes to the prerequisite structure and course rotation. The CIS faculty is aware of no instances when the CIS portion of the course schedule contained any conflicts that slowed student graduation. However, there have been a few occasions when CIS courses were in conflict with courses in other departments, despite the CIS faculty's attempts to avoid such conflicts. Moreover, there have been instances when students have failed prerequisite courses and had to wait to take a desired course until it was offered in its normal published fall or spring rotation. Positive steps to overcome any student misconceptions in this aspect are new advising materials and the Houston 106 bulletin board, both developed in September 2007.

Page 17 and page 32. There is a misstatement regarding CIS faculty credentials on both pages. Rather than "... one has an MBA with MIS major ..." they each should read "... one has a PhD with MIS major" Therefore, all four CIS faculty hold appropriate degrees; three are terminal.

Page 17-18. The CIS faculty agrees with the recommendation regarding course load. Loads of four classes with two preps are not achievable as long as CIS enrollments are low. However, four/three loads across the board should be possible rather than the occasional four/four loads.

Page 19-20. The funding scenario for the dedicated CIS lab will become clearer after there has been more history with the new CIS course fees that went into effect with the fall 2007 semester. A replacement schedule for that lab will be defined. CIS faculty will work with administration to better understand the replacement schedule for other labs and for offices that is in place and will work with the advisory board for a software endowment.

Overlooked in the reviewer's recommendations is the challenge of creating continuity of personnel to support the dedicated CIS lab, a factor the CIS faculty considers to be a high priority.

Page 21. The CIS faculty will continue its efforts, begun in Spring 2007, to change the required course in the BBA from CISB 101 to CISB 210, which will most likely be approved in Fall 2008 and take effect in Fall 2009. The faculty will also explore potential to support business and other students by encouraging packages of courses leading to specializations.

Page 22. The CIS faculty will explore joint programs in medical and governmental informatics. A first step in that direction is the creation of a new minor in Managerial Informatics which was approved November 30, 2007 by the Department of Business faculty and will be on the agenda of the Curriculum Committee in January 2008.

The CIS faculty will attempt to find ways to reach out to students who have not yet declared a major. The faculty will also explore opportunities to offer sections online. Toward that end, the faculty will discuss with departmental leaders the plan for remote delivery that was developed in August 2007.

The CIS faculty agrees with Dr. Fustos' SWOT analysis. One weakness not yet covered herein is the "need for continuous faculty development and training." The rapidly changing nature of many areas within the CIS discipline creates a challenge not found in many academic disciplines. Furthermore, management of the specialized lab requires faculty to be current on ever-changing hardware, software and network components. There should be a budget to provide such training for CIS faculty on a regular basis.

Pages 23-24. The charts provided will be useful for recruiting purposes.

Pages 25-33. Again the CIS faculty wishes to express gratitude to Dr. Fustos for his expertise in restating his findings and recommendations in the ABET format. While no new information was found on these pages, the formatting will be very useful in future ABET accreditation processes.

