

# The MIS Core Class: Some Possible Solutions

Kathleen A. Moser  
[kam@nau.edu](mailto:kam@nau.edu)

Craig VanLengen  
[Craig.VanLengen@nau.edu](mailto:Craig.VanLengen@nau.edu)

Rick Lucy  
[Rick.Lucy@nau.edu](mailto:Rick.Lucy@nau.edu)

Computer Information Systems  
College of Business Administration, Northern Arizona University  
Flagstaff, AZ 86001-5066

## Abstract

The MIS core course at our university is currently under a major redesign. Some of the significant problems that we are trying to overcome include student backgrounds, lack of reinforcement of concepts through other courses, faculty's dissatisfaction in teaching the course, and course focus. This paper discusses three different modes of course presentation during Spring 2000.

**Keywords:** IS Curriculum, distance learning, MIS course, CBA core

### 1. INTRODUCTION

Keeping the CIS programs in our universities current with industry needs has become a colossal task, especially for the MIS core course. Many different techniques have been tried in an attempt to convince business majors that the knowledge of information technology is essential to solve management problems and find new opportunities to improve their organizations regardless of their chosen major. The success rate that we have experienced in reaching our students has been disappointing at best. Evaluations reveal that our students, including our CIS majors, do not see the relevance of this course to their future job success.

This paper discusses three possible solutions to address the difficulties that our students have had with this course. We also offer one other idea that remains to be tested.

### 2. BACKGROUND

In a previous proceedings paper, we discussed the challenges faced by our university in delivering a MIS core course that will benefit the students and be

somewhat enjoyable to teach by our professors. The course is often designed by faculty under the premise that it will be taken the first semester of a student's junior year as an introduction to the management of IT. It is a broad overview of how and why technology is deployed in organizations to increase efficiency and effectiveness, as well as achieving and maintaining competitive advantage.

Students enter the course with varied levels of exposure to IT-- from a minimum of having taken only the basic computer literacy course to senior level CIS majors. Most students are juniors and seniors, with a significant number of the non-CIS majors graduating that same semester. The MIS course is part of the common business core courses required of all college of business majors. The students are only required to take the course prior to the business policy capstone course. CIS and non-CIS majors take the course as late as possible in their program of study. The non-CIS majors mistakenly view the class as highly technical and the CIS majors view it as an unnecessary, non-technical course.

Sections of this course are usually composed of equal numbers of students from each of the majors within the business school. As noted above, students entering the class have different perceptions and expectations

depending on major and previous experience. Many Non-CIS majors develop "mental blocks" that inhibit their learning. CIS majors, on the other hand, have a tendency to neglect the course under the misguided premise that they already know all there is about computers. These perceptions make it is very difficult for instructors to design a successful course. Introducing more technical office automation systems (OAS) tools reinforces non-CIS majors' bias, whereas, focusing more on management issues tends feed into the CIS majors' biases.

To placate both biases, many instructors have attempted to teach both advanced (OAS) tools skills and the management of IT. Considering the fact that OAS represents only a small portion of the subject material introduced in an IT overview course, there is often a logical disconnect between these two objectives. Often, faculties have difficulty incorporating new and relevant examples of OAS tool usage that directly relate to the topic at hand. For example, there is a logical disconnect in the student's mind when they are discussing knowledge management in the classroom and at the same time they are assigned a mail-merge project. Students resist learning when the projects they are working on have little or no connection to the theoretical material presented in the classroom. When faculty incorporate relevant OAS projects, the workload placed on students is often well above that expected from courses at the same level. Trying to meet these two, often conflicting, objectives into one course routinely results in students learning neither the tools nor management of IT.

### **3. ALTERNATIVE COURSE DELIVERY METHODS**

In the spring semester of 2000, four professors were assigned to teach the MIS core course. Each professor took a different approach to the course. The next sections discuss the three non-traditional (experimental) approaches. These approaches include: 1) teaching via the Internet, 2) hybrid course pedagogy, and 3) total student delivery of topics.

#### **Web Implementation of the MIS core**

The Web implementation of the MIS course was created for the College of Business Administration to meet its statewide mission. One mission, of the university, is to work with rural community colleges to provide the junior and senior courses for several 2 + 2 degree programs. The initial means of delivering these courses was via interactive instructional television (IITV). As more of the community colleges in the state joined the 2 + 2 effort, the university experienced greater demand for courses than could be met with the bandwidth that was

non-CIS majors feel that the course is highly technical available. An effort was started to develop and deliver courses on the Web to meet the growing demand. This would allow the university to reduce the demand on IITV and provide instruction to more students at a lower cost. Most of the students taking the Web courses would be using their own computers from home and not making demands on the communications networks of the community colleges or the university. Web courses also do not require operators, production facilities, and control rooms at each site when the course is presented.

The Web based MIS course was first designed with the expectation that enrollment would be around 20 students per semester. So problem assignments and case studies were selected and included in the course with this number of students in mind. The reality was that 51 students enrolled, with half of the students being from the main campus of the university. With the increased enrollment grading assistance was requested and provided but not until after the first week of the course. The instructor had to scramble to find an acceptable grader while the first set of assignments was being e-mailed. The other problem was that the assignments chosen for an enrollment of 20 were not easily turned over to a grader. The solution to the case or the problem assignment was on depth of the answer not a specific correct or incorrect answer.

Another problem with the course was that students who enrolled after pre-registration did not receive instructions about how to contact the instructor so that they could receive the user login and password to the course Web site. This required the instructor to locate and contact the students on the roster that had not requested the login and password.

Virtual Conference Center (VCC) software was used for group discussions. This required the students to obtain and use a *dana* (name of a UNIX server) account from the university-computing center. This account is available free for all registered students. However, many students preferred to use their personal ISP, because they were more comfortable with it, and in most cases it provided them with faster access speeds. The PPP connection provided by the *dana* account is normally no faster than 28.8 kps.

The College of Business Administration upgraded all the software in faculty offices and in the computer labs to Office 2000 for spring semester. Data files for the hands-on computer assignments were made available in Microsoft Office 2000 format. Two weeks into the semester the first computer assignment was due. The instructor was notified that the computer labs at the statewide sites were still on Office 97. Students who had purchased a computer and Office software a semester

prior to the release of Office 2000 did not want to upgrade unless absolutely necessary. This required the instructor to create Office 97 versions of the data files and to create another link for each assignment for the 97 versions of the data files.

**Class Participation:** In a classroom an instructor can identify who is participating in class discussions and group exercises. On the Web the instructor needed to log on to the VCC and visit each group area to see who was participating. With 15 different groups, each individual group area would be visited and the discussions would be reviewed and notes made on participation. Observations were made and posted to the group area to ensure that students were on the right track. To encourage participation, the instructor sent e-mails to those students who were not participating in the group discussions and to those whose contribution was simply "I agree" or "that's right." They were reminded that the expectations were to make meaningful contributions to the discussions and that they were being observed.

**Web Site Maintenance:** Several times during the semester it was found that links to sites had disappeared completely or were redirected from the page that was being linked to. In the case of disappearing links it required the instructor to search and find other pages with similar content or to completely remove the link and to provide a discussion to replace the material from the link that disappeared.

**Technology Problems:** Several of the students were trying to do the course at home with older machines and old versions of the browsing software. With 28.8 kbps modem connections they did not like to download upgraded software and they did not feel comfortable with the installation of the upgraded software. Every time a student experienced a hardware or software problem they would send the instructor an e-mail. The instructor read each e-mail to determine what the problem was and forwarded the e-mail to the appropriate technical support person for assistance.

**Face-to-Face contact (F2F):** The course did not require any face-to-face contact with the instructor. However, several of the students from the statewide sites came to the main campus for a visit during the semester. They notified the instructor by e-mail of their visit to campus and a time for a face-to-face meeting was arranged. From the discussion with the students that came by for a visit this is their normal procedure. They come to the main campus each semester for the sole purpose of meeting their professors.

Another observation on face-to-face meetings is that the students from the statewide sites would get together at each other's homes or at the local community college to discuss the homework and to have study sessions. These meetings were not for the assigned group work since the groups for the course were geographically dispersed

(The four members of the group were from different communities). The idea of creating the geographically dispersed groups was to ensure that they used the VCC for their group discussions.

### Hybrid Course Pedagogy

In the hybrid approach, the course emphasis was on the management of information systems supplemented with directly related material on small database development as well as basic Web page creation. Tool usage was based upon skill sets that non-CIS students would not pick up in other business core courses such as spreadsheets, word processing, and occasionally, rudimentary file management. At the same time, an effort was made to provide an overall structure for the course (one topic or chapter per week), while at the same time allowing student involvement/participation in the direction of the course. Additionally, the course was designed to minimize the perception of non-CIS students that the CIS majors had some technical advantage. This was accomplished by requiring the same work product from all students. Many professors continue to use CIS majors as "technicians" to support group work of the non-CIS majors. This phenomenon is not restricted to the management of IT course. As such, the non-majors are not compelled to learn the technical issues and the CIS majors are not compelled to learn the management issues. This also creates an atmosphere of inequity amongst the students. The weekly course content consisted of one lecture, covering a single text chapter, followed in the next class with a case study, covering the same topic, and finally, the last class meeting of the week was reserved for student presentations of current and relevant IT topics. An attempt was made to have the student become more involved in his or her own performance evaluation. This included allowing the students to submit test questions (one was required every week) that were selectively incorporated into examinations. The students' unedited questions were incorporated into a study guide that was posted to the instructor's Web site several days before the exam.

Students evaluated the weekly group presentations. The student evaluations represented 50% of the group's presentation grade. Each week the presenting group selected at random groups of three or four students for a future presentation. Each group was only given two weeks to prepare their presentation. The students expressed a sense of fairness with this method, in that everyone had the same time to prepare and every student had the same risk of being teamed with a non-performing member. The group members were also required to rate the performance of the other members in the group. The total grade for the presentation was based on the class rating (50%) and the instructor's rating (50%). Each individual in the group received a separate grade based on the total grade for the presentation weighted by an intra-group rating of fellow

team members. The group selected the specific topic of the presentation and the workload distribution was a decision made by the group. The group was required to submit their presentation, which was subsequently posted to the instructor's Web site and was subject to inclusion on exams.

**Database Project:** Students were assigned a simple business-oriented database project. Unlike the group presentation, the database project was an optional group project. Students could opt to work alone or they could choose to work in groups (up to a maximum of three members per group). Students could choose their own work teams; however, no more than one CIS major could participate in any given team. Group members were required to rate the contribution of each of the other group members, which like the group presentations affected a student's project grade.

The database project assigned to all the students involved adding a calculation to an Excel worksheet and porting that worksheet into Access, and creating a new table. The instructor provided a database with two existing tables. Using this database, the students were asked to develop two queries using QBE (query-by-example), one unmatched query (using Access' Unmatched Query Wizard), and three simple SQL queries. Prior to assigning the project, the students were given specific instructions on how to perform each step in a series of hands-on lab sessions using a different, but similar, database.

**Web Project:** Students were asked to develop a Web page using Netscape Composer™. The students were requested to develop a page showing what they had done on a recent vacation. This was an individual project. Students were given a 50-minute hands-on lecture on how to use Netscape Composer™ and how to incorporate the specific elements required in the project into a Web page. The instructor also posted a Netscape reference guide on the Web for student use.

Students were required to compose a single Web page that would persuade a target audience to either visit, or not, a location where you have taken a trip or taken a vacation within the last two or three years. This location could have been where they had gone for the current spring break. Students were instructed to concentrate on one particular aspect, such as a review of hotel/restaurant/bars, the natural beauty of a location, something they had learned, that moved them, etc.

Students were instructed to include:

- Detail
- Sensory imagery (sight, sound, smell, touch, taste)
- Figurative language (similes and metaphors)
- Specific, non-generic adjectives and verbs

Half of the grade for the project was based upon technical requirements and the other half on content. This distribution provided the non-CIS majors an opportunity to excel on content while meeting the minimum technical requirements; while at the same time, forcing CIS majors to invest an appropriate amount of time on content development rather than technical gimmicks.

Technical requirements for the Web page included:

1. Contain a minimum of three graphical elements (jpg, gif, animated gif, etc.) incorporated with the body of the text, which directly relate to the text and emphasize some point therein. One of these graphical elements must be a picture that includes the student at the location. There was no restriction on the content (this is the student's story) or the maximum number of graphics. However, consideration should be given to attracting visitors to the page and ensuring that the page can load in a reasonable amount of time (visitors will not look at a site if it takes too long to load).
2. Contain a minimum of three "good" hyperlinks to other URLs that provide additional and relevant information.
3. Contain at least one table.
4. Contain a fully functional feature to e-mail the author.
5. At the bottom of the page, indicate the following:
  1. The student's name and ID
  2. The page's objective
  3. Specifically state the target audience (who is this page supposed to appeal to)

Content was evaluated upon the page incorporating:

1. A clear purpose/objective
2. Catching the target reader's attention in the first few sentences
3. Using descriptive language and vivid details
4. Using a cohesive structure and consistent tense
5. Have been checked for proper grammar, punctuation, and spelling.

**Observations:** Class attendance was not taken or required. As a result, on any given day, no more than two-thirds of the students attended class.

Despite having submitted a majority of the questions presented on the exam, and having all of the questions posted as a study guide, students performed poorly on the exams, averaging 68% on the first exam and 61% on the second exam. Students' grades on exams appeared

to be multi-modal and tightly clustered in the mid-nineties, mid-eighties, and mid-seventies. These clusters were also strongly predicative of major, with the accountants tending to cluster in the nineties, the CIS majors clustering in the eighties, and all other majors below.

- Overall, the students did extremely well on the projects. Many students expressed excitement and satisfaction by successfully completing the projects. Some students indicated that they had used the Web project as a springboard to create their own home page.
- Only about one-sixth of the same students participated in class. These tended to be the students who performed well on examinations and projects. In general, most students had not read the textbook or were ever prepared for class, as evidenced by an inability to respond to the instructor's questions during a lecture or case study.
- Most students expressed fairness in the group assignments because of the random selection technique used and equal preparation time allowed each group. There was only one group out of eighteen that reported a disproportionate contribution between team members that resulted in individual grades being different than the overall grade for the group.
- CIS majors routinely under-performed, even those with good grades in current and previous CIS courses. This would support the contention that CIS majors feel that they have enough background in the subject and tend to let this course "slide." Although they tended to set-the-curve on the projects and actively participated in case discussions, they often invested inadequate time on the management issues. This inattention was reflected in their frequently weak test grades. Most CIS majors were juniors.
- Marketing and management majors complained frequently of the highly technical nature of the course despite the relatively low proportion of their grades based upon technical knowledge and skills. Most of these students tended to be seniors within two semesters of graduation. Many commented on their lack of technical expertise and having a mental block against anything technical. This was clearly borne out on their exams; however, most of them did very well on the technical database project and tended to do extremely well on the Web project.
- Accounting and finance majors tended to do the best overall and represented a large proportion of the highest grades in the class. These majors were about equally balanced between juniors and seniors.

### Student-Run Lectures (Out-of-the-Box)

Having tried many different methods of delivery, including some listed in the previous sections, and having similar dissatisfying performance issues with the students, a more radical approach was applied called, "out of the box." On the first day of the semester, the history of this course was described with a list of reasons as to why both students and professors do not like this course. Students agreed. This important step made the students realize that the CIS faculty was aware of the problems associated with the course and that we were searching for methods to improve it.

**Scripts to describe general events:** Students were given the names of different events and were to describe them in general terms without using the name of the event. When the event of a "university lecture" was described, the class recognized it immediately: *low monotone voice talking about something no one is interested in that goes on forever and then we are tested and will never use the information again.* This set the stage for a student-run class based on topics that students are interested in and will find useful to their future career paths.

**Class size:** The first hurdle to overcome was the size of the class. Higher enrollments in the CIS major courses, specifically, and the business college, in general, required an increase in class size from 30 to 50 students. In order to keep the team size to a manageable amount, nine teams were formed. Time allowed for each team to prepare and deliver two 50-minute presentations on topics that they found interesting and wanted to learn more about.

**Topic selection:** Although students were given the choice of topics, a list was supplied that included subject matter from the textbook, current news events, and Internet news events.

**Team dynamics:** Each team completed a list of possible evaluation measures for the presentations. All measures were compiled into one list and agreed upon as the measures that all presentations would be evaluated against. The professor set the 50-minute time limit for each presentation. In the next few days, the movie, *12 Angry Men* was shown to help the students see team dynamics at work and to identify those situations that would keep a team from performing at its best in accomplishing a task. The professor presented additional lecture material on the students' roles and responsibilities when working in a self-directed team.

The teams were given their task, the evaluation measures, and the specifications that the topics be timely, related to information systems, and address at least one of the objectives of the course as specified in the course syllabus. As self-directed teams, the teams decided how to accomplish their task. Initially, the

professor chose the teams. For the second round of presentations, students were allowed to change members if they wished. The majority did not change.

Each team prepared a presentation outline, a list of resources needed to deliver the presentation, and a list of ten multiple choice questions about their chosen topic to be added to the pool of exam questions. In essence, the students were teaching their peers about information systems – choosing delivery methods that best presented the material and best portrayed the way that students themselves want to be taught. Each lecture included a 50-minute presentation, 15 minutes for questions, observations, and discussion, and 10 minutes of evaluation. Each team presentation was evaluated by the other teams (not by individual students) based on the agreed upon evaluation measures. The professor also conducted an evaluation. Evaluations were returned to the presenting team before the next team presented.

Course evaluation included the two presentations (each worth 25% of the final grade), and two exams (also each worth 25% of the final grade). Two-thirds of the exams included team-developed questions from the pool of exam questions. The professor developed the remaining one-third of the exam questions based entirely on the topic lectures. This was used as an incentive for students to attend all lectures. The exams could not be completed successfully simply by reading a textbook and not attending the lectures.

#### **Observations**

- Students were very excited in this radical approach to an unpopular course. A short survey after the midterm exam revealed that ten percent of the students were not at all comfortable with the unstructured nature of the course and if given the opportunity, would switch to a more traditional lecture course.
- The information provided for the students on how to work successfully within teams proved to be invaluable. The comments were consistent across all teams; many stating that this was their best team experience thus far.
- With the first round of presentations, students were given the opportunity to modify the evaluation criteria for the presentations. Twenty five percent of the students offered suggestions for change. All were incorporated into the evaluation document.
- Overall, the topic presentations were excellent. Students used a variety of media to demonstrate their acquired knowledge of the subject including guest speakers, video taped interviews, movie clips, games, and Web site demonstrations. PowerPoint was the presentation software of choice in most presentations. Presentations included topics such as the Microsoft Monopoly, nanotechnology,

biometrics, hackers and computer security, cybernetics, GPS, and E-Commerce.

- Team evaluations of the presentations were somewhat of a mystery. At times, it seemed as if one team despised the other teams. Clearly, some evaluations did not concur with the presentation that the professor witnessed. Repeated warnings of such inappropriate activity went unchecked. The responsible teams were not identified, as each team evaluation was considered confidential in the evaluation process.
- After the midterm exam, attendance dropped to fifty percent. When asked if attendance should be taken and a penalty given for missed classes, over one half of the students agreed.
- More rigorous evaluation measures for exams must be defined.

#### **4. CONCLUSIONS**

Additional observations of the three approaches will be provided at the conference. The college is currently in the process of experimenting with the MIS core course by integrating course content with other business core courses. The first series of experimental courses will be offered in fall 2000. The CIS faculty continues to devise new delivery methods for this very challenging course.

#### **5. REFERENCES**

- Moser, K. and C. VanLengen, 1999, *Conflicting expectations and presentations: Between the devil and the deep blue sea*, Proceedings of ISECON'99, October 1999, 294-298.
- Nitterhouse, D., 1999, *Incorporating Internet distance learning components in a management information systems course*, Proceedings of ISECON'99, October 1999, 94-102.
- Novitzki, J., 1998, *The MIS core course: Focus on managerial needs not technology*, Proceedings of ISECON'98, October 1998, 116-121.