



OAKLAND
COMMUNITY
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Memo

TO: Martin Orłowski
Director, Institutional Planning and Analysis

FROM: Don Mann
Faculty, Computer Information Systems
Auburn Hills Campus

SUBJECT: CIS Environment Assessment

DATE: February 27, 1998

The CIS discipline is reviving its three-year plan concept, and we need your help. As you can see from the attached model, the first step in creating a new plan is to assess the current environment, including external data such as the employment market in the computer field, and internal data, such as enrollment trends.

I know your office has a wealth of data that would be of great benefit to our faculty and advisory committee as we plan curriculum revisions for the next three years and thereafter. I will contact you the second week of March to come visit you and have you acquaint me with the most applicable research information that you have that you would recommend.

I look forward to seeing you again.

Needs Assessment.



TO: Computer Information Systems Discipline:
Auburn Hills Highland Lakes Orchard Ridge Royal Oak
Ron Pavlak, Chair Dr. Hank Austin C.B. Martin, Chair Larry Molloy
Patricia Marion Alan Jackson
Dan Marus Ian Leath
Tom Parkinson
Fran Vallely

FROM: Don Mann, CIS, Auburn Hills *Don Mann*
CIS Three-Year Plan Coordinator

SUBJECT: Revolving Three-Year Discipline Plan

DATE: February 18, 1998

Please review the attached Annual Model for establishing a CIS Revolving Three-Year Plan.

Given that it is not possible in the time remaining to develop a discipline plan to support a budget for the deadline which is imminent, the earliest budget year that we could now have a plan for begins July 1999. Beginning with that fiscal year, 1999/2000, the initial objective would be to have a discipline three-year plan established for 1999-2002. This would be the fiscal years 1999/2000, 2000/2001 and 2001/2002.

The budget deadline for the 1999/2000 fiscal year is February 1st, 1999. In order for us to have a three-year plan to present to the college administration in the months before that deadline, we need to have the plan completed by October 1st of 1998. If we follow the attached model, we would begin in March of 1998, which is next month.

We then would follow the model each year, March through September, to increment the plan on a revolving basis to close the eldest year and add a year to the front of the plan.

Mann
I will be collecting institutional and other environment assessment data and distributing it to you in March. Please add this data to your own material to personally assess the OCC CIS environment, including the constantly changing employment market for our graduates and enrollment and other trends.

Plan on a CIS Curriculum Advisory Committee meeting in April. Patricia Marion has graciously agreed to be the new advisory committee coordinator. She will be contacting you for names of potential new advisors, since the current roster has become sparse.

In order to make this model work, as coordinator I *really* need your prompt cooperation when requested over the next seven months. Thanks in advance and watch your mail!

Annual Budget Planning Model
Discipline of Computer Information Systems
CIS Revolving Three Year Plan

Planning Phase	Responsibility	Each Year	Input	Output
	Coordinator <i>me</i>	March	<ul style="list-style-type: none"> ✓ Active CIS 3-Year Plan ✓ Institutional Research ✓ Other Curricula CIS Requirements 	Distribute to Advisory Committee and Discipline Members
1. Assess Environment	Advisory Committee & Discipline Members	April	Advisory & CIS Faculty Committee Meeting	Discipline Environment Assessment
2. Determine Desired Student Outcomes	Discipline Members	May	Discipline Environment Assessment	Discipline Student Outcomes Assessment
3. Determine Curriculum	Discipline Members, then Campus Chairs	June	Discipline Student Outcomes Assessment	Discipline Curriculum, then Curricula per Campus
4. Determine Languages & Applications	Campus Chairs	July	Curriculum per Campus	Software Requirements per Campus
5. Determine Training & Equipment	Campus Chairs	July	Software Requirements per Campus	Training & Hardware Requirements per Campus
6. Establish Budget	Campus Chairs	August	Software, Training & Hardware Requirements per Campus	Budget per Campus
7. Integrate Updated Plan	Coordinator, then Discipline Approval	September	Budget, Software, Training & Hardware Requirements per Campus	<ul style="list-style-type: none"> ✓ <u>Incremented Three Year Plan, including Budget</u> <u>Deadline: October 1</u>

Core Research Questions and Issues Multimedia Needs Assessment

Executive Summary

- “Multimedia” is defined as a computer related process that improves the transfer of information by involving the participant's simultaneous use of two or more senses. A multimedia program typically has sound, video, audio, and graphics built into it.
- Training students to work with these media could involve computer science, art, graphics, and electronics. Many educational institutions are combining just such an amalgamation of programs to create a “multimedia” program.
- A committee on the Orchard Ridge campus at Oakland Community College has proposed a multimedia certificate. The focus of this certificate would be on communications and training. Graduates of this certificate might work as corporate trainers, instructional designers, or multimedia developers.
- Another option is to create a continuing education program for working professionals who need to or want to learn multimedia applications. Such a program could be created in conjunction with a certificate option.
- Several sources define today’s hot jobs as Web Masters, Intranet Designers, and Applications Engineers. The Information Technology Association of America estimates that 190,000 high-tech jobs are now vacant. The Department of Commerce reckons the nation will need a million more information-technology workers by the year 2005 than will be available. Because these workers are so scarce, businesses such as Microsoft Corp., Intel, and Computer Associates are funding training programs in high schools, technical schools, and universities.
- In making these programmatic decisions, OCC faculty and administrators may want to establish partnerships to help with further research, program development, and implementation.
- Detroit News & Free Press Classified Ads clearly show that there is a market in the Detroit area for CIS/computer programmers. There is also a need for web page developers, which should be a part of any multimedia program. There is also a local need for people skilled in Internet and CD-ROM applications/development.
- There are positions available for “trainers.” While the ads for these positions do not specify “multimedia” trainers, there are positions open for people who know how to train others on computer software. This aspect of multimedia may be a viable option for a continuing education program. There may be a need to train people how to provide software training, incorporating multimedia into their training program.

Core Research Questions and Issues Multimedia Needs Assessment

Introduction

"Multimedia" is defined as a computer related process that improves the transfer of information by involving the participant's simultaneous use of two or more senses. A multimedia program typically has sound, video, audio, and graphics built into it. Although this definition is fairly straightforward, the application of it for a college setting is quite complex. An advertisement for a multimedia firm in Ann Arbor, Michigan states that "multimedia" refers to interactive communications in the form of web sites, electronic brochures, kiosks, and 3D animation. Training students to work with these media could involve computer science, art, graphics, and electronics. Many educational institutions are combining just such an amalgamation of programs to create a "multimedia" program.

In conversing with multimedia experts throughout the country, they listed skills they believe should be taught in such a multimedia program. These skills include: 2-D and 3-D computer animation, modeling, and rendering; developing C-D ROMS; coding; creating and editing digital images; database programming; digitizing video and audio; downloading multimedia files from the Web; game development; illustration; graphic art and design; interactive multimedia authoring; Internet programming, publishing, and design; internetworking; multimedia PowerPoint presentations; non-linear editing; photo manipulation; scripting for multimedia; telecommunications; typography; and video editing.

Creating a program that teaches students all of these skills may not be feasible. Throughout the country, multimedia programs focus on various aspects of multimedia, including Communications, CIS, Graphics Design; Animation; Training; Interactivity; Networking; Web Mastery/Design; Digital Photography; Information Technology; Video/Sound Production; Multimedia Production; 3-D Arts; and Web Technology.

The Program Options

The Proposed Program

A committee on the Orchard Ridge campus at Oakland Community College has proposed including the following courses in a multimedia certificate: Multimedia Communication, Public Speaking, Professional Communication, Technical/Business Writing, Desktop Publishing, Visual/Graphic Design, Photography, PowerPoint, Media Production, and WWW/Internet. The certificate program would also include an internship. The focus of this certificate would be on communications and training. Graduates of this certificate might work as corporate trainers, instructional designers, or multimedia developers.

There are other programs throughout the country with similar focuses. Houston Community College offers an Associate Degree in Technical Communication specializing in Multimedia. They also offer three Multimedia certificates, one of which is called Courseware and Training Materials. At Kirkwood Community College, students create multimedia Power Point presentations in a Multimedia Composition course. Students download multimedia files from the Web, scan and digitize images, and digitize video and audio to create the presentation. Johnson County Community College offers an Interactive Media Vocational Certificate through its Communication Design program.

Lima Technical College in Ohio offers two multimedia oriented certificates: "Multimedia" and "Video and Graphics Specialist." Some of their courses are relevant to OCC's proposed plan. One is Business Computer Graphics and Presentations. In this course students learn how to produce powerful and effective graphic communications tools using software packages. In their Introduction to Multimedia course, students learn to use graphics, sound, and animation to build a multimedia presentation. In the more advanced courses, students learn video production, compression, and editing concepts; sound and graphics; and HTML programming, editing, and linking. However, faculty in this program stress that graduates' salaries are "not that great."

Hartnell College in Salinas, California offers a Multimedia Technology certificate program that focuses on training students to design and produce effective presentations. They teach students to combine graphics, text, sound, music, video, and animation in their presentations. The College of the Redwoods, also in California, offers an Associate of Science Multimedia Communications Program. They offer courses in multimedia literacy, multimedia design, modeling and animation, electronic presentation, electronic publishing, and multimedia authoring.

Grand Rapids Community College has a program called Multimedia Communications Technician I. According to their catalog,

The Multimedia Communication Technologies program provides students an opportunity to prepare for practical careers in fields which use computer-based digital equipment as production and delivery media. Based on a core of courses emphasizing the integrated use of text and graphics, and sound and animation in communication media, the curriculum allows the student to prepare for employment in one or more of these areas: writing and copy production, illustration and commercial imaging, video and multimedia communication, including a virtual reality option. The curriculum emphasizes the complete process starting with initial concept, idea development, creation and modification of digital pieces, to final production and delivery of the product.

Other Options

There are basically five options to choose from in considering how to increase multimedia applications in OCC's programs. The first option is to introduce multimedia into current programs, such as communications, art design, business, information sciences, education, CAD, CIS, journalism, electronics, and English. The Photography faculty have chosen this option, and their program could be used as a model. Some job market analysts suggest this option as the most practical, believing that multimedia should be incorporated into existing programs rather than used to create a stand-alone program (interview with MSU's Career Placement Director).

The second, third, and fourth options are to create a certificate, AAS, or AS degree program. Several community colleges and other educational institutions throughout the country offer programs specifically in multimedia. Of these three options, the certificate option may be the most viable, as some program administrators stressed that students often get job offers before they finish their programs. This option is the one considered by the committee on the Orchard Ridge Campus. Based on this research, there are more certificates offered in multimedia throughout the country than there are associate's degrees.

The fifth option is to create a continuing education program for working professionals who need to or want to learn multimedia applications. Such a program could be created in conjunction with a certificate option. Other institutions throughout the country have initiated such continuing education programs. Northwestern University offers workshops on incorporating interactive multimedia and Internet resources into higher education curriculum. Students learn to incorporate pictures, slides, and audio and video recordings into their projects. Students pay anywhere from \$500-\$850 for the three day workshop.

Inver Hills Community College offers training in instructional technology and design for faculty across the state. This initiative was grant funded by the state. Capstone Communications, Inc. based in Dallas, Texas, charges \$405 for a 2 day course targeted for professionals. The course teaches these professionals to produce "high quality promotional and educational materials." They offer instruction in several areas, including creating web pages, 3D animation, designing storyboards, and producing videos.

Not only are other institutions offering training for continuing education, but there are several on-line courses as well. Presenters University offers free, on-line resources that provide "valuable, easy-to-use tips, along with information on tools and training to help educators develop effective multimedia presentations for the classroom."

Professionals working with multimedia stress that there is a need for all of these five options.

Establishing a Need

It is no secret that the digital revolution is well under way. Digital technology translates images, graphics, text, video and sound to a common language—revolutionizing all the information industries, including photography, publishing, education, and entertainment. Trying to stay on top of the rapidly evolving digital technology is a daunting task, one that requires constant learning and relearning of new skills and techniques just to keep pace. According to James Morrison,

Our students are entering a world in which 60% of the jobs will require technological competency--a world in which they must continue to update their occupational and technological skills in order to be successful. We must enable them to become technologically competent. We must take advantage of the capacity of technology to enhance our traditional classroom presentations and to engage our students in active learning.

Industries

People skilled in multimedia can work in several industries, including entertainment, communications, education, marketing, training, public relations, advertising, consulting, multimedia design, Internet providing, and information technology. These industries are all represented in OCC's service area. According to Term magazine, training is being increasingly offered through Multimedia-Based Training (MBT) in the form of CD-ROMs, electronic performance support, and Internet-Web system applications.

People trained in multimedia hold several different types of positions, depending on their knowledge and skills. Some of these positions include: Animator/Illustrator; Authoring and Scripting Specialist; Business Presenter; CD-ROM Developer; Communications Specialist; Computer Based Trainer; Digital Video and Audio Editor; Edutainment Product Developer; Hypertext and Interactive Multimedia Developer; Information Manager; Interactive Kiosk Developer; Interface Designer; Internet Developer; Multimedia Game Developer; Software Infotainment Designer; Virtual Reality Designer; and WWW Page Editor. Salaries for people in these positions are very good. One local recruiter stressed that if Web Masters are good (meaning that they know JAVA, JAVA Script, Visual Basic, C++, Perl 5, Microsoft's Active Server Pages, Oracle, Active X, and Microsoft's Internet Information Services) they can command \$45,000 to \$60,000 salaries. This same recruiter also stressed that potential employees should have between 1.5 and 3 years of real life experience. Many educational programs include mandatory internships for their students to provide them with some out-of-the-classroom experience.

Local Job Openings

Based on job openings for multimedia specialists posted on the Internet, most of the jobs are in California, Texas, Florida, Georgia, Massachusetts, and New York. There is some evidence that there may be a need for web masters in OCC's service area. Local headhunters emphasize that they cannot find skilled web masters in the Detroit area. There is also an indication that there is a local need for people skilled in interactive marketing and multimedia. According to a representative of Idetix Inc, an interactive media solutions provider, the classifieds are "loaded with jobs for Interactive Multimedia project managers and directors." Some examples from the January 18 and 25 Detroit News/Free Press Classified Ads follow. The majority of ads on both of these days were for people with CIS skills.

Analysts & Programmers--Logica, Inc. With a staff of over 5,500 employees in 29 countries Logica is one of the world's largest providers of Information Technologies Services. Here in Michigan we are the fastest growing IT Services provider with growth exceeding 300% in the last six months alone! To sustain this rapid growth rate, and to service the projects we have already won and the work we expect to be awarded, we need to add many more IT professionals to our staff in the coming months. We currently have needs for: High Level SQA Consultants #5 ix RAD Lead Analysts RAD Tools Specialists Project Mgrs. & Team Leaders WEB Systems Developers (JAVA, Perl) SCADA & Plant Floor Systems Consultants LAN/WAN Network Developers & Engineers IBM Mainframe Programmers & Analysts Visual Basic Programmers & Analysts Oracle Client Server Applications Developers. We seek technically talented, intelligent IT professionals who want to work for an organization that values their contributions and ideas, and who offers them continued opportunity for professional growth and advancement. To find out more about Logica, and to learn more about how your goals fit into our future, send your resume to:

Logica, Inc. Attn: Jim Pantelas Staffing Consultant Fairlane Office
Center Suite 549 6 Parklane Boulevard Dearborn, MI 48126 FAX:
(313) 593-3070 Email:panetlasj@logica.com

If you have the drive and the ambition to make an impact, EDS invites you to explore the following opportunities in Troy, Southfield, Flint, Saginaw, and Lansing, MI: Information Analysts, Programmer Analysts, Systems Analysts, Software Testers and Developers, Web Page Developers, Project Management Professionals. C++ C/UNIX-MVS IMS DB2 CASE Tools UNIX Shell Visual Basic COBOL PL/1 Oracle Data Mining Data Warehousing. All positions required strong interpersonal and communication skills.

Please mail, FAX or e-mail your resume, indicating position of interest to: EDS Staffing, Dept. 72-7343, 700 Tower Drive, 5th Floor, Troy, MI 48098; FAX (248) 265-1501; e-mail: staffing@eds.com Visit us on the Web at <http://www.eds.com>. A more productive way of working EDS.

INSTRUCTIONAL DESIGN Troy interactive communications developer is looking for self-motivated, creative people with excellent interpersonal skills, consultative experience and team leadership abilities to design and develop computer based training applications. Understanding of the value of metaphor in training and the need for theory in training required. Also, basic understanding of programming and graphics is preferred. If you like to problem solve and have a desire to learn, please send resume and salary requirements to: VuCom newMedia 1256 Kirts Blvd, Ste 300 Troy, MI 48084

KBE/WEB DEVELOPER Digital Collaborative Computing/Visualization Required experience: Knowledge-Based Engineering Web technologies Java, Java Scripts, PERL C++ Object oriented design BS or MS, EE or ME or CS 1-3 years **EMERGING TECHNOLOGIES**

WEB MASTER Design and maintain Web site for Internet company. Relevant degree and at least 2 years experience required.

Marketing Coordinator--Gale Research, a multimedia reference publisher of print, electronic and Internet services, has an immediate opportunity for an entry level marketing assistant who will interface with key sales and marketing staff in the development and implementation of marketing programs for its government and non-profit market place. The successful candidate will also participate in direct mail, trade show and sales/product training activities. A bachelor's degree or equivalent is required, preferably in marketing or a related area, along with proven organizational and analytical skills. Must possess demonstrated written and verbal communication skills and be able to prioritize and manage multiple assignments. A familiarity with creative procedures (both copy and graphics) is required. For immediate consideration, please fax or mail your resume and salary expectations to: GALE RESEARCH Human Resources Attn: MC #690 835 Penobscot Bldg. 645 Griswold Street Detroit, MI 48226 FAX (313) 961-6817

Instructional Technology Designer--Wayne State University has an immediate opening for an Instructional Technology Designer. This position is responsible for designing and enhancing computer

courseware for a college-level engineering program located at Focus:HOPE in Detroit, MI. This position works closely with the lead designer and engineering professors. Position requires a degree in instructional technology with a background in adult learning, manufacturing and/or engineering desirable. Demonstrated skills in PC or MAC environment, proficient in Word or Word Perfect and Powerpoint. Familiarity with interactive design of multimedia computer instruction desirable. Strong organization, problem solving and writing skills essential. There is a heavy emphasis on designing lesson strategies, organizing/tracking project details and writing projects. Send resume to: Wayne State University 5700 Cass-Room 1900 Detroit, MI 48202

New Media. Caribiner Communications' Detroit office is in the process of building a strong, innovative digital media group, including Internet and Intranet applications; interactive learning programs; multimedia presentations and more. Caribiner offers a dynamic work environment with plenty of growth opportunity. **Internet Project Manager** - Team leader with strong technical, leadership and organizational skills. Important position with lots of growth potential. Relevant experience essential. **Web Developer** - Will conceive, develop and support a variety of Web applications. Extensive technical skills and recent Web development experience essential. Database and dynamic HTML knowledge a plus. E-mail your resume to caribinerjobs@mail.com or fax it to: 313-629-0339.

MULTIMEDIA PROGRAMMER Troy interactive communications developer is looking for a creative and innovative individual to develop, program and author Internet and CD-ROM applications. Candidates must have two years experience in object-oriented programming and Internet-related software. Java, PERL, Director, ToolBook, C/C++ and Visual Basic experience is a plus. If you're quick to learn, self motivated, and thrive on learning new technologies, send your resume. VuCom newMedia 1256 Kirts Blvd, Ste 300 Troy, MI 48084

COMPUTER INSTRUCTORS Wanted Contract Computer Instructors to train in Groupwise, Outlook, MS Office, Smartsuite, Windows 95. Also network administration trainers for Novell and Windows NT. Strong experience with corporate training or training educators a plus! Please send/fax resume and hourly pay requirements to: MS Attn: H.R., 21421 Hilltop St. #7, Southfield, MI 48034 or (248) 358-3569.

WEB MASTER Design and maintain Web site for Internet company. Must know HTML, JavaScript, Active X, Front Page, NT & Microsoft IS. Minimum 2 years Web development experience. Degree preferred.

Future Growth

According to the largest international recruiter (MRI International), the two hottest areas related to multimedia are Telecommunications and Information Technology. They survey approximately 6,000 executives each year to determine employment trends and have identified these two fields as experiencing tremendous growth in the past five years. People skilled in Information Technology work as IT consultants, programmers, web masters and systems analysts. MRI expects this trend to continue. A local headhunter concurs. He stressed that there will be a need for web page developers in Southeast Michigan for at least the next 5 years, and probably the next 5-10 years. Others believe that there will always be a need for graphic artists, and they must understand video production and Internet multimedia.

An article in Newsweek substantiates MRI's findings. They define today's hot jobs as Web Masters, Intranet Designers, and Applications Engineers. The Information Technology Association of America estimates that 190,000 high-tech jobs are now vacant. The Department of Commerce reckons the nation will need a million more information-technology workers by the year 2005 than will be available. These positions usually require degrees in computer science and electrical engineering. Because these workers are so scarce, businesses such as Microsoft Corp., Intel, and Computer Associates are funding training programs in high schools, technical schools, and universities. The following release was posted to the "Training and Development Listserve."

In an effort to alleviate a critical shortage of skilled information-technology professionals, Microsoft Corp. and the nation's community colleges have teamed up to expand IT curricula and faculty training at community colleges. The Redmond, WA, software giant's five-year commitment includes \$7 million in cash grants, software and technical assistance to the colleges.

The project, dubbed Working Connections, is expected to bolster IT education at 20 to 25 colleges that will be selected to receive grants of \$200,000 to \$300,000 each. In addition, five colleges that are considered leaders in information-technology education will receive approximately \$100,000 each to serve as mentors to grant recipients. Colleges selected for the project will be announced in three 28-month grant cycles beginning in February.

The initiative addresses a shortage estimated at 190,000 information-technology professionals in mid- and large-sized U.S. companies alone. Adding to the concern is a projection by the U.S. Department of Labor that 80 percent of new jobs in the next 10 years will be in IT fields. Many worry that the worker gap could harm U.S. competitiveness in high-tech markets worldwide.

Two-year colleges train a significant percentage of the professionals in IT fields, says American Association of Community Colleges President David Pierce. In 1994 and 1995, the colleges conferred close to 40,000 IT certificates and degrees, plus thousands of other degrees requiring IT skills.

Student Demand

There are signs indicating that students around the country are interested in multimedia programs. More students than were expected enrolled in multimedia programs in Indiana, New Jersey, and Michigan. These programs are attracting new students, rather than taking existing students away from other programs. Many educators believe that students will continue to demand to be taught to use the latest technology, either because they have used it in their work or because they have been exposed to it in their K-12 schooling. Evidence for this belief may be found at the Orchard Ridge campus. The Digital Photography program there has experienced fairly steady enrollment since upgrading the technology, while the Graphics and Commercial Art program, which has not upgraded its technology, is experiencing declining enrollment. There is further indication that there may be a demand for continuing education in multimedia. OCC's Bonnie George has reported that she is quite frequently asked by local businesses to teach PowerPoint. Jan Harp, on the other hand, has received no requests for PowerPoint training.

Local Competition

Some local community colleges offer programs or courses in multimedia. Macomb County Community College offers an Introduction to Multimedia for Business course using the Internet in their BIS program. Schoolcraft College just added a Multimedia Track to their Computer Graphics Technology program.

Other institutions offer similar training. Specs Howard focuses solely on radio and television production without any computer training. New Horizons provides training on the Internet and on how to develop WWW pages. However they do no job placement and do not know how successful their "graduates" are. Lawrence Technological University offers a BS degree in Technical Communication. This program applies traditional writing and speaking skills to enhance the understanding of technical

materials and products. Their graduates design and produce materials in all media— print, electronic, video, and multimedia. Walsh College in Troy offers a Masters degree in Information Management and Communications.

Other local institutions provide continuing education in instructional technology, communications, and training. The Academic Outreach office at the University of Michigan offered a training program for K-12 Teachers who had graduated from the UM. They taught teachers to use PowerPoint and the basics for creating a Web page. They were able to offer .5 Continuing Education units for 6 hours of training. They charged \$120 for 6 hours of training.

Oakland Schools provides training in instructional technology to K-12 educators in Oakland County's school districts. A booklet of the technology offerings is published and sent to the school buildings in the 28 school districts. Most of the classes focus on a specific piece of software or specific application. Occasionally they also offer more generic sessions that address integration of technology. According to a representative from Oakland Schools, several of the districts in Oakland County provide their own staff development. The same representative said that they have been doing a lot of multimedia training for years and have built capacity in some of the districts. They are also increasing their focus on Internet training. She reported that demand for Internet training is increasing. She is also investigating training efforts to integrate instructional technology.

Starting a Program

Whether OCC decides to create a certificate program or introduce multimedia applications into current programs, there will be significant costs involved. A community college instructor in California said that they paid \$200,000 for hardware and \$200,000 for software in creating their multimedia AAS program. Hardware and software needs will vary, depending on the focus of the program. Once hardware and software are purchased, additional staff will likely need to be hired to support the technology. As these programs are very expensive, tuition and fees are often quite high. The International Academy for Merchandising & Design charges \$270 per credit hour and \$800 per course for the course in their 2 year program on Interactive Communications Technologies (focusing on web pages, special effects, animation, and internet providing/developing). Burlington County College in New Jersey estimates that their Computer Graphics Management program costs \$56 per credit hour to administrate. Many institutions charge a technology fee to help finance these programs.

It is also difficult to find faculty who are trained in multimedia. For a 3D Computer Animation and Visualization program in Canada, the instructor they hired was one of only 6 applicants in a worldwide search.

Conclusion and Directions for Further Research

If OCC does choose to introduce a certificate program in multimedia, it may be important to ensure that it includes video and audio digitizing, editing, CD-ROM development, graphics/animation, and extensive web page development.

In making these programmatic decisions, OCC faculty and administrators may want to begin to set up partnerships to help with further research, program development, and implementation. For example, OCC could look into partnering with Specs Howard for providing the audio and video component of the program. Another partner prospect is Oakland Schools. They know about the training needs for Oakland County teachers and could help shape a continuing education component for multimedia. Another possibility would be to further investigate the Microsoft grants to see if OCC would be eligible for this program.

In order to help OCC faculty and administrators to decide on a multimedia option, the Office of Planning & Analysis may want to do a survey of potential employers and/or potential continuing education customers. Corporations such as Childs Consulting Association, Inc., located in Southfield, which offers education, training, and product development services would be included in the survey. The survey results would provide a clearer picture of job and salary opportunities for community college graduates.

Preliminary job information can be gleaned from the Detroit News & Free Press Classified Advertising. These ads clearly show that there is a market in the Detroit area for CIS/computer programmers. There is also a need for web page developers, which should be a part of any multimedia program. There is also a local need for people skilled in Internet and CD-ROM applications/development. There are positions available for "trainers." While the ads for these positions do not specify "multimedia" trainers, there are positions open for people who know how to train others on computer software. This aspect of multimedia may be a viable option for a continuing education program. There may be a need to train people how to provide software training, incorporating multimedia into their training program.



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Occupational Employment Trends Report

A ten year view of changing occupational trends and a comparison of OCC educational programs which are related to the fastest growing and declining Careers in the United States and Michigan.

Revised: April 3, 1998

Prepared by the Office of Institutional Planning & Analysis

Occupational Employment Trends Report

The primary purpose of this report is to examine current employment trend data and to identify which fastest growing and declining occupations have corresponding programs of study at OCC. Specifically, this report will:

- 1) Present data from the Bureau of Labor Statistics 1998-1999 report of the American Workforce about the fastest growing and declining occupational areas nationally.
- 2) Include data from the Bureau of Labor Statistics 1996-1997 report of the Michigan Workforce regarding the fastest growing and declining occupational areas.
- 3) Explore the relationship between these data and current programs offered at OCC.

General Labor Force Trends

According to the Bureau of Labor Statistics (BLS), total employment in the United States is projected to increase by 18.6 million jobs during the 1996-2006 period. While this rate of growth is slower than the 19% rate for the previous ten year period, it represents a 14% increase in the total number of jobs. The smaller increase is due to slow population growth and high rates of labor growth in previous periods. The positive overall trend for 1996-2006 means that the economy is likely to continue generating jobs for those at all educational levels (Silvestri, 1997). The average growth of jobs needing an associate's degree or post-secondary technical training is greater than for those jobs requiring no post-secondary education or training. In addition, workers with an associate's degree earned significantly more money than the average salary for all workers in 1996, the last year such data were available. It is important to note that figure for the average salary of all workers includes those occupations where high school or less is the educational attainment requirement. This group has the lowest weekly earnings of all occupational groups. These data seem to indicate that the occupations with the most growth and higher than average wages for the new millennium will require an associate's degree (Franklin, 1997).

Growth By General Occupational Groups

By the year 2006, approximately 149 million people will be in the American workforce. In what areas will these people likely be working? The employment landscape continues to change with significant gains being made in some sectors, while others are in decline. In terms of overall trends, the service sector will have the highest growth rate from 1996-2006 with two out of every three new jobs being in this area. There is a projected 18% increase in the number of jobs in this sector. Health, business, social, and engineering services will account for the largest portion of growth within the service sector. Other sectors with healthy growth projections include: Professional specialty occupations, marketing/sales, technicians, and administrative support personnel. The manufacturing sector will continue to decline, but this rate will be slower than for the previous ten year period. The only occupational category in this sector that is projected to grow is the construction industry. These data appear to indicate that the service sector of the economy will continue to experience the greatest growth until 2006. A more focused treatment

of specific occupations and national and state projections will be presented in the next section.

Detailed Occupational Trends - Growth

BLS has compiled projection data for approximately 500 occupations both in terms of real number of jobs and occupational percent change. On the following page, Table One presents information about the thirty fastest growing occupations in the United States is included. In addition, Michigan-specific data is also presented for each occupation, as well as the number of jobs annually available in the state of Michigan. When comparing the national trends to Michigan data there is good correspondence with the exception of significantly less growth in Michigan for medical assistants, human service workers, and adjustment clerks. The last two columns included in the table present information about opportunities at OCC to prepare for these fast growing occupations and their minimum educational requirements. In terms of an overall pattern, OCC offers direct educational and technical training for approximately two out of three of the thirty fastest growing occupations.

About half of the thirty fastest growing occupations require some post-secondary educational training. Five of the occupations in the top thirty require bachelor's degrees, one requires a master's degree, and the remaining occupations have post-secondary education requirements beyond on-the-job training. These figures illustrate the varied mosaic of opportunity for the labor force. Employers will continue to need workers with all levels of training and education. It is important to note, however, that those workers with a greater level of education and training will likely have more options in the labor market and have greater opportunity to obtain high paying positions (Silvestri, 1997). This fact has not escaped the attention of those not yet in the labor force. Evidence points to the fact that a majority of secondary school students anticipate receiving some type of post-secondary training. This suggests that students are aware of the increased demand in occupations which require such an educational level (Hurtado, Inkelas, Briggs, & Rhee, 1997). This fact may have implications for an institution like OCC offering programs for in demand occupations.

Most of the occupations in the top thirty are those in the fastest growing industries. Rapid expansion in the computer and data processing service industry is clear as the three top occupations on the list are in the field. Also in this area are desktop publishing specialists and data equipment repairpeople. OCC offers educational and training programs for many of these fields. Approximately half of the occupations in the table are in the growing industry of health services. This field is expected to increase at twice the rate of the general economy. About three million jobs are predicted to be created by the year 2006. OCC has a variety of degree options in this area. Some examples are medical records, dental hygiene, and respiratory therapy. The remaining occupations on the list are from a variety of specialties which include paralegals, residential counselors, and amusement attendants. With regard to these growing occupations, OCC has many degree programs to provide students with training for jobs most likely to be available. These determinations were made by examining the program offerings at OCC and comparing them to the job descriptions provided by the Bureau of Labor Statistics. This information linking OCC programs with specific occupations is not meant as an assessment of program quality with regard to occupational preparation. No inferences, neither positive nor

Table One: Fastest Growing Occupations in the United States 1996-2006 (BLS).

Occupation	National Employment 1996 2006	National Percent Change	Michigan Employment % Change in 2005	Annual Job Openings (Actual #)	OCC Program(s)	Minimum Education and Training Category
Computer Support	212,000 461,000	118	75	700	Computer Information Systems	Associate's Degree
Computer Engineers	216,000 451,000	109	102	660	Computer-Aided Engineering	Associate's Degree
Systems Analysts	506,000 1,025,000	103	98	2100	Transfer	Bachelor's Degree
Home Care Aides	202,000 374,000	85	95	580		Short On-the-job Training
Physical & Corrective Therapy Assistants	84,000 151,000	79	56	180	Physical Therapy Assistant	Moderate On-the-job Training
Home Health Aides	495,000 873,000	76	98	1860		Short On-the-job Training
Medical Assistants	225,000 391,000	74	5	200	Medical Assistant	Moderate On-the-job Training
Desktop Publishing	30,000 53,000	74	NA	NA	Business Information Systems	Long On-the-job Training
Physical Therapists	115,000 196,000	71	74	260	Physical Therapy Assistant	Bachelor's Degree
Occupational Assistants	16,000 26,000	69	76	30		Moderate On-the-job Training
Paralegals	113,000 189,000	68	52	130	Legal Assistant	Associate's Degree
Occupational Therapists	57,000 95,000	66	61	70	Transfer	Bachelor's Degree
Teacher Special Education	407,000 648,000	59	30	630	Transfer	Bachelor's Degree
Human Services Workers	178,000 276,000	55	-6	-250	Early Childhood Development, Gerontology, Mental Health	Moderate On-the-job Training
Data Equipment Repair	80,000 121,000	52	30	800	Machine Repair	Vocational Training
Medical Records	87,000 132,000	51	52	1400		Associate's Degree
Speech Pathologist	87,000 131,000	51	33	1200	Transfer	Master's Degree
Dental Hygienist	133,000 197,000	48	26	1650	Dental Hygiene	Associate's Degree
Amusement Attendants	288,000 426,000	48	35	2600		Short On-the-job Training
Physicians Assistants	64,000 93,000	47	19	350	Transfer	Bachelor's Degree
Respiratory Therapists	82,000 119,000	46	34	1000	Respiratory Therapy	Associate's Degree
Adjustment Clerks	401,000 584,000	46	1	100		Short On-the-job Training
Engineering, Science	343,000 498,000	45	33	4000	Computer Information Systems, Engineering	Associate's Degree and Work Experience
Emergency Medical Technician	150,000 217,000	45	27	1200	Emergency Medical Technician	Vocational Training
Manicurists	43,000 62,000	45	31	200	Cosmetology	Vocational Training
Bill & Account Collectors	269,000 381,000	42	33	2200	Accounting	Short On-the-job Training
Residential Counselors	180,000 254,000	41	48	2250	Transfer	Bachelor's Degree
Sports Instructors, Coaches	303,000 427,000	41	25	1700	Exercise Science & Technology	Moderate On-the-job Training
Dental Assistants	202,000 278,000	38	26	1700	Dental Hygiene	Moderate on-the-job Training
Financial Sales Workers	263,000 363,000	38	35	1450	Business Administration	Associate's Degree and Work Experience

Source: National data from the BLS Report on the American Workforce 1998-99. Michigan data from the BLS Report on the Michigan Workforce 1996-97.
OCC educational programs from the course catalogue 1997-1998.

Table Two: Fastest Declining Occupations in the United States 1996-2006 (BLS).

Occupation	National Employment 1996 2006	National Percent Change	Michigan Employment % Change in 2005	Annual Job Openings (Actual)	OCC Program(s)	Minimum Education and Training Category
Sewing Machine Operators	453,000 334,000	-118	1	30		Short On-the-job Training
Farmers	1,109,000 997,000	-112	-11	660		Long On-the-job Training
Bookkeeping Auditing Clerks	2,250,000 2,147,000	-102	6	1370	Accounting	Long On-the-job Training
Typists & Word Processors	653,000 552,000	-100	-15	260	Business Information Systems	Long On-the-job Training
General Secretaries	2,881,000 2,794,000	-87	1	1770	Business Information Systems	Short On-the-job Training
Domestic Cleaners/ Servants	505,000 421,000	-84	-7	190		Short On-the-job Training
Computer Operators	258,000 181,000	-77	-37	110	Computer Information Systems	Associate's Degree
Farm Workers	873,000 798,000	-75	-4	510		Short On-the-job Training
Duplication Mail & Other Office Machine Operators	196,000 149,000	-47	-29	270		Short On-the-job Training
Welfare Workers	109,000 76,000	-34	17	1300	Mental Health, Social Work	Associate's Degree
Textile Machine Operators	183,000 155,000	-28	5	NA		Short On-the-job Training
Telephone Station Installers	37,000 10,000	-27	-6	110		Short On-the-job Training
Private Child Care Worker	275,000 250,000	-25	16	510	Early Childhood Development	Associate's Degree
Precision Testers & Graders	634,000 610,000	-24	-4	540		Vocational Training
Central Office Operators	48,000 26,000	-23	-76	30		Short On-the-job Training
Machine Tool Cutting Operators	127,000 105,000	-22	-26	220	Tool Machinist All-Around	Vocational Training
Print Film Strippers	26,000 7,000	-20	5	20		Vocational Training
Peripheral Computer Equipment Operators	33,000 17,000	-17	-56	10	Computer Information Systems	Associate's Degree
Directory Assistance Operators	33,000 18,000	-16	NA	NA		Short On-the-job Training
Custom Tailors & Sewers	87,000 73,000	-15	-36	20		Long On-the-job Training
Textile Machine Setters	41,000 27,000	-14	5	NA		Short On-the-job Training
Highway Maintenance Workers	171,000 158,000	-14	4	150		Short On-the-job Training
Statistical Clerks	78,000 65,000	-13	-11	40	Transfer	Bachelor's Degree
Butchers & Meatcutters	217,000 205,000	-12	-10	160		Long On-the-job Training
Paste-up Workers	5,000 4,000	-11	-29	10		Short On-the-job Training
Typesetting Machine Operators	14,000 3,000	-10	-72	10		Vocational Training
Drilling, On-the-job Training g & Boring Machine Tool Setters	46,000 36,000	-10	-20	80	Tool Machinist All-Around	Vocational Training
Proofreaders Copymarkers	26,000 16,000	-10	12	50		Long On-the-job Training
Lathe & Turning Machine Tool Setters	71,000 61,000	-10	4	130	Tool Machinist All-Around	Vocational Training
Payroll & Time keeping Clerks	161,000 151,000	-10	-2	110	Accounting	Long On-the-job Training

Source: National data from the BLS Report on the American Workforce 1998-99. Michigan data from the BLS Report on the Michigan Workforce 1996-97.
OCC educational programs from the 1997-1998 Course Catalogue.

negative, should be drawn. The program description and required courses were examined to prepare this report, and no other data regarding quality was assessed. A similar table is presented concerning occupational decline.

Detailed Occupational Trends: Decline

Despite the overall health of the United States economy, there are expected to be decreases in several occupations for the 1996-2006 period. Much of this anticipated decline is due to a change in the industrial segment employment picture. Table Two on the previous page contains a list of the thirty occupations with the largest predicted rate of decline. Michigan data is also provided for each occupation, including the total number of jobs available annually. The final two columns in the table present information regarding OCC educational and training programs available for the occupation, as well as minimum educational requirements. Most of the occupations in decline are affected by structural changes which result from technological advances and reorganization that lessen the demand for such workers. Jobs in farming, the garment industry, and electronics, are expected to decrease. Employment in the domestic child care and cleaning field are also expected to experience a decline as well. Finally, due in large part to the increase in office automation technology, bookkeepers, duplication, mail, and general office clerks will also experience a decline in employment. National trends for the most part mirror those for Michigan, but there are some exceptions. The trends in Michigan for garment sewing operators, bookkeeping clerks, general secretaries, welfare workers, and domestic child care givers are predicted to be stable, not declining as they are nationally. While a few of these occupations require some post-secondary educational training, most only require low to moderate levels of on-the-job training. OCC does have some educational and training programs which are applicable to some of the remaining occupations. In comparison to the number of OCC offerings for the fastest growing occupations, this number is small. It is important to note that some of the OCC programs applicable to occupations on the fastest growing list, are also applicable to occupations found on the fastest declining list (e.g. CIS). This fact may indicate a need to examine existing programs to assess the extent to which they focus on the skills necessary for the faster growing occupational areas. Overall, these trends seem to support the assertion that post-secondary training, particularly an associate's degree, is an important precursor to securing a strong occupational future in the next century, despite the downward trend in a few occupational areas like computer and tool machine operators.

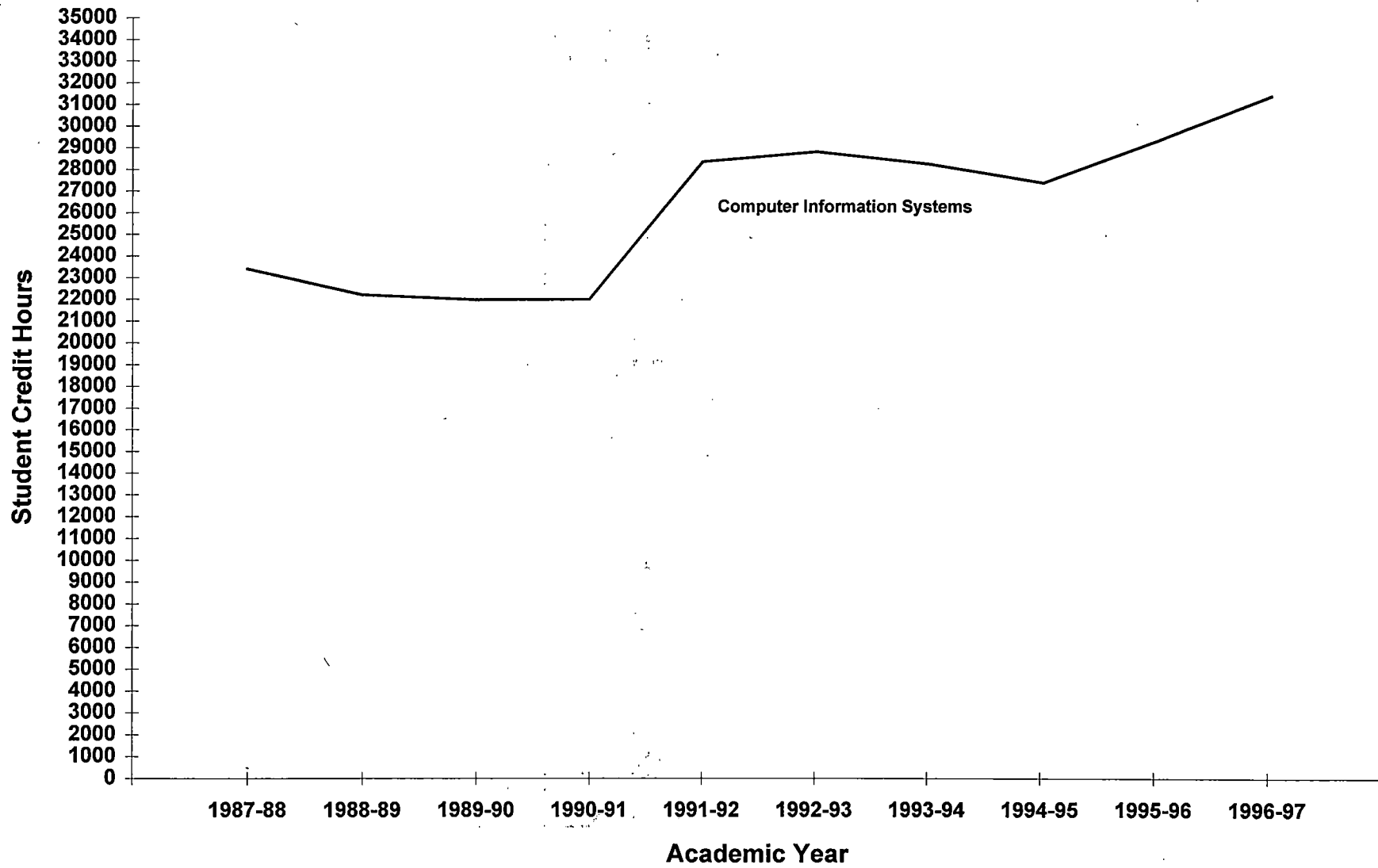
Conclusion

The main goals of this report were to provide national and state data about employment trends until 2006, and to present information concerning OCC educational and training programs and their relationship to current occupational trends. Results appear to be consistent with the conclusion that for a majority of the fastest growing occupations, OCC has a current program which prepares students for career positions.

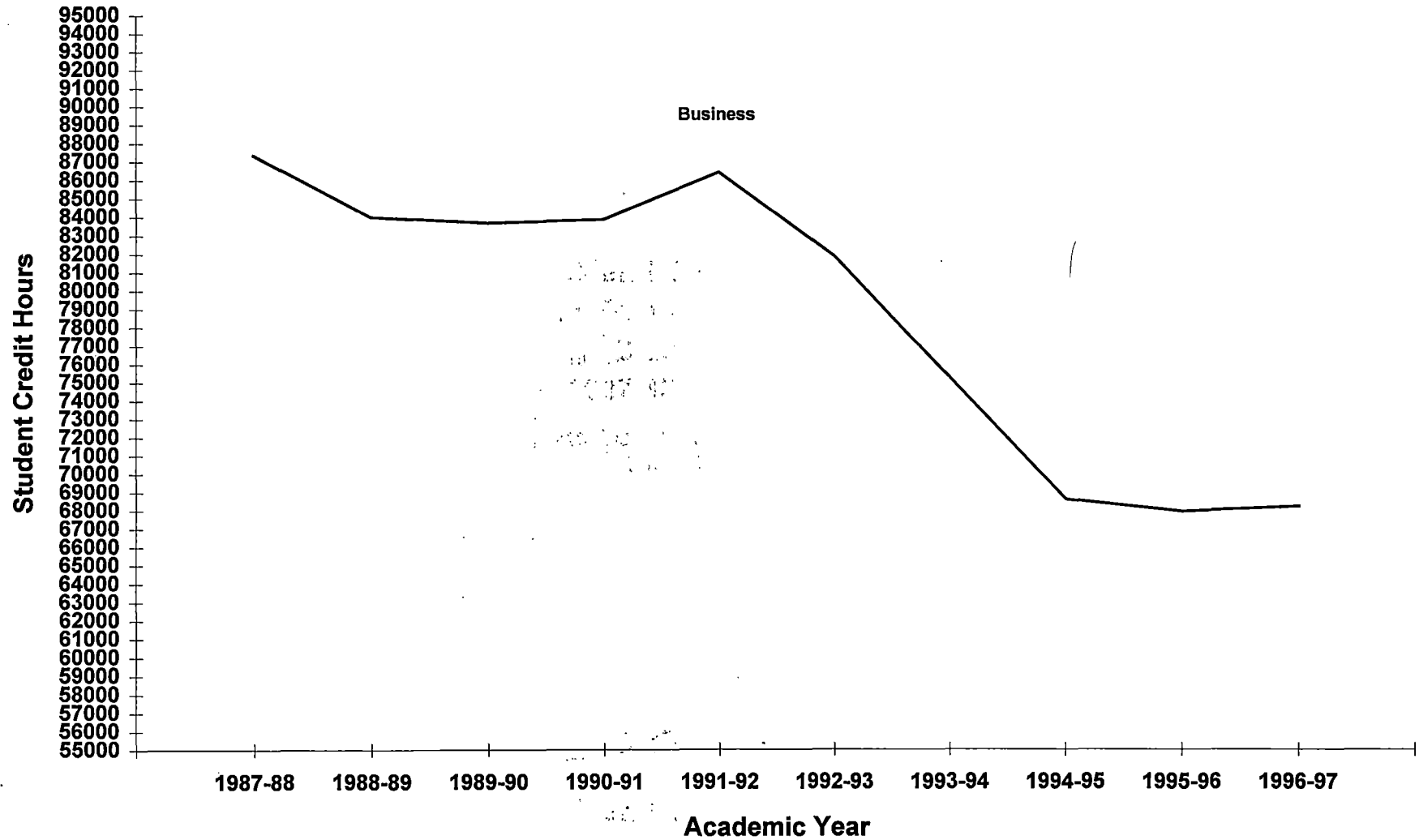
Oakland Community College
Ten Year Trend In Student Credit Hours
Computer Information Systems, Business Cluster, and College Wide Totals
1987/88 through 1996/97

	1987-88 SCH	1988-89 SCH	1989-90 SCH	1990-91 SCH	1991-92 SCH	1992-93 SCH	1993-94 SCH	1994-95 SCH	1995-96 SCH	1996-97 SCH	Five Year % Change	Ten Year % Change
Computer Information Systems (CIS)	23,386.0	22,200.0	21,965.0	21,974.0	28,336.0	28,804.0	28,230.0	27,380.0	29,326.0	31,398.0	9.0	34.3
Business (Cluster)	87,330.0	83,992.0	83,669.0	83,836.0	86,387.0	81,808.0	75,194.0	68,563.0	67,922.0	68,193.0	-16.6	-21.9
College Wide Totals	479,520.8	482,565.5	493,814.5	508,276.4	532,100.3	528,685.9	501,553.3	471,592.8	451,158.5	434,021.3	-17.9	-9.5

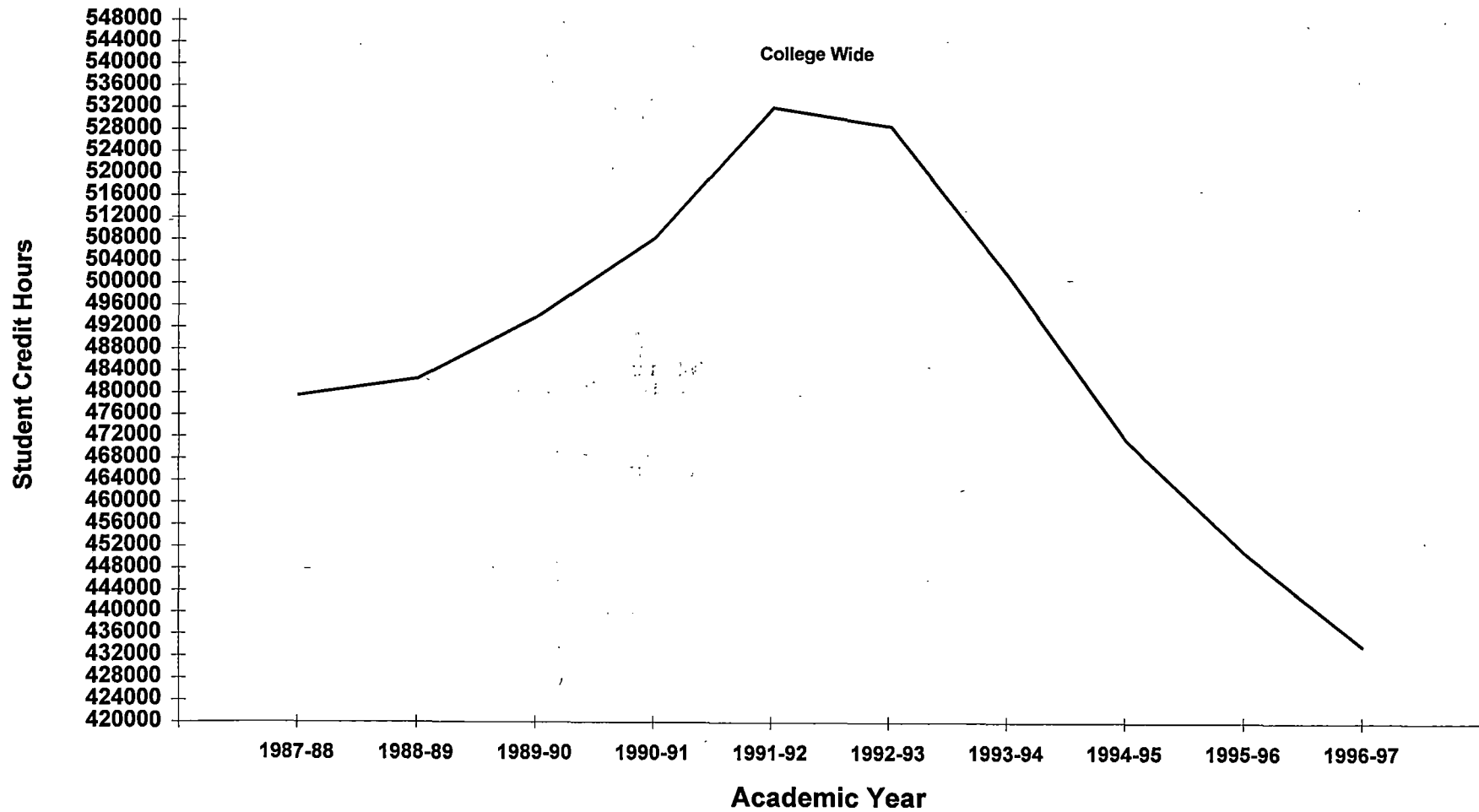
**Oakland Community College
Ten Year Trend in Student Credit Hours
Discipline: Computer Information Systems
1987/88 through 1996/97**



Oakland Community College
Ten Year Trend in Student Credit Hours
Cluster: Business
1987/88 through 1996/97



**Oakland Community College
Ten Year Trend in Student Credit Hours
College Wide Totals
1987/88 through 1996/97**



Oakland Community College
Ten Year Trend in Associate Degrees & Certificates Awarded
Computer Information Systems, Business Cluster, And College Wide Totals
(1987/88 through 1996/97)

Associate Degree

	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	Five Year	Ten Year
	SCH	SCH	SCH	SCH	SCH	SCH	SCH	SCH	SCH	SCH	% Change	% Change
Computer Information Systems (CIS)	0	0	0	2	8	12	15	26	17	31	158.3	--
Business (Cluster)	658	555	596	581	626	476	484	443	402	329	17.6	-30.9
AAS (Degree Type)	864	770	718	761	874	923	903	795	821	884	-4.2	2.3
College Wide Totals	2,003	1,934	1,894	1,969	2,187	2,121	2,111	1,945	1,843	1,870	-11.8	-6.6

Certificate

	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	Five Year	Ten Year
	SCH	SCH	SCH	SCH	SCH	SCH	SCH	SCH	SCH	SCH	% Change	% Change
Computer Information Systems (CIS)	0	0	0	0	0	0	0	0	0	0	0.0	0.0
Business (Cluster)	14	14	20	26	24	31	24	20	19	17	-45.2	21.4
College Wide Totals	120	131	65	135	128	175	137	112	89	94	-46.3	-21.7

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
LOOK Months Looking for a Job After Graduation * GYY Year of Graduation	19	31.7%	41	68.3%	60	100.0%
JOB Primary Occupational Function (Job Title) * GYY Year of Graduation	34	56.7%	26	43.3%	60	100.0%
FIRM Primary Business Function of Employer * GYY Year of Graduation	32	53.3%	28	46.7%	60	100.0%
RELATED Job Related to Program of Study at OCC * GYY Year of Graduation	35	58.3%	25	41.7%	60	100.0%
TRY Try to Find a Job Related to Program of Study? * GYY Year of Graduation	3	5.0%	57	95.0%	60	100.0%
WHYNOT Reason NOT Employed in Degree Field * GYY Year of Graduation	2	3.3%	58	96.7%	60	100.0%
USING Using Knowledge and Skills? * GYY Year of Graduation	31	51.7%	29	48.3%	60	100.0%
RATING Rate Relevance of OCC Educational Experience * GYY Year of Graduation	30	50.0%	30	50.0%	60	100.0%
DESCRIBE Rate Return on Investment * GYY Year of Graduation	36	60.0%	24	40.0%	60	100.0%
ATTAINED Attained Short Term Educational Goals? * GYY Year of Graduation	36	60.0%	24	40.0%	60	100.0%
INTEREST Interested in Taking More Courses at OCC? * GYY Year of Graduation	34	56.7%	26	43.3%	60	100.0%

GENDER Students Gender * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
GENDER	0	Count	10	12	7	29
Students Gender	Female	% within GYY Year of Graduation	52.6%	46.2%	46.7%	48.3%
	1	Count	9	14	8	31
	Male	% within GYY Year of Graduation	47.4%	53.8%	53.3%	51.7%
Total		Count	19	26	15	60
		% within GYY Year of Graduation	100.0%	100.0%	100.0%	100.0%

RACE Students Race * GYY Year of Graduation Crosstabulation

		GYG Year of Graduation			Total
		94 1994	95 1995	96 1996	
RACE Students Race	1 White	Count 16	20	13	49
	% within GYG Year of Graduation	88.9%	76.9%	86.7%	83.1%
2 African American	Count		1	1	2
	% within GYG Year of Graduation		3.8%	6.7%	3.4%
4 Asian	Count	2	4	1	7
	% within GYG Year of Graduation	11.1%	15.4%	6.7%	11.9%
5 Hispanic	Count		1		1
	% within GYG Year of Graduation		3.8%		1.7%
Total	Count	18	26	15	59
	% within GYG Year of Graduation	100.0%	100.0%	100.0%	100.0%

START Year and Session First Enrolled at OCC * GYY Year of Graduation Crosstabulation

		GYG Year of Graduation			Total
		94 1994	95 1995	96 1996	
START Year and Session First Enrolled at OCC	775	Count 1			1
	% within GYG Year of Graduation	5.3%			1.7%
781	Count	1			1
	% within GYG Year of Graduation	5.3%			1.7%
805	Count		1		1
	% within GYG Year of Graduation		3.8%		1.7%
811	Count		1		1
	% within GYG Year of Graduation		3.8%		1.7%
831	Count		1		1
	% within GYG Year of Graduation		3.8%		1.7%
841	Count			1	1
	% within GYG Year of Graduation			6.7%	1.7%
855	Count		1		1
	% within GYG Year of Graduation		3.8%		1.7%
881	Count			1	1
	% within GYG Year of Graduation			6.7%	1.7%
901	Count		1		1
	% within GYG Year of Graduation		3.8%		1.7%

START Year and Session First Enrolled at OCC * GYY Year of Graduation
Crosstabulation

START Year and Session First Enrolled at OCC	Count	GYY Year of Graduation			Total
		94 1994	95 1995	96 1996	
902	% within GYY Year of Graduation	1 5.3%			1 1.7%
905	% within GYY Year of Graduation	3 15.8%	1 3.8%		4 6.7%
911	% within GYY Year of Graduation	1 5.3%		2 13.3%	3 5.0%
912	% within GYY Year of Graduation		1 3.8%	1 6.7%	2 3.3%
915	% within GYY Year of Graduation	2 10.5%	1 3.8%		3 5.0%
921	% within GYY Year of Graduation	2 10.5%		1 6.7%	3 5.0%
922	% within GYY Year of Graduation		2 7.7%		2 3.3%
924	% within GYY Year of Graduation	1 5.3%			1 1.7%
925	% within GYY Year of Graduation	2 10.5%	2 7.7%		4 6.7%
931	% within GYY Year of Graduation	2 10.5%	2 7.7%		4 6.7%
932	% within GYY Year of Graduation		1 3.8%	1 6.7%	2 3.3%
935	% within GYY Year of Graduation	1 5.3%	2 7.7%		3 5.0%
941	% within GYY Year of Graduation	1 5.3%	1 3.8%		2 3.3%
942	% within GYY Year of Graduation	1 5.3%	1 3.8%	1 6.7%	3 5.0%
945	% within GYY Year of Graduation		1 3.8%	2 13.3%	3 5.0%

START Year and Session First Enrolled at OCC * GYY Year of Graduation Crosstabulation

		GY Y Year of Graduation			Total
		94 1994	95 1995	96 1996	
START Year and Session First Enrolled at OCC	951	Count	4	2	6
		% within GYY Year of Graduation	15.4%	13.3%	10.0%
	952	Count		1	1
		% within GYY Year of Graduation		6.7%	1.7%
	954	Count		1	1
		% within GYY Year of Graduation		6.7%	1.7%
955	Count	2		2	
	% within GYY Year of Graduation	7.7%		3.3%	
961	Count			1	1
	% within GYY Year of Graduation			6.7%	1.7%
Total	Count	19	26	15	60
	% within GYY Year of Graduation	100.0%	100.0%	100.0%	100.0%

REASON Primary Objective in Attending OCC * GYY Year of Graduation Crosstabulation

		GY Y Year of Graduation			Total	
		94 1994	95 1995	96 1996		
REASON Primary Objective in Attending OCC	0 To increase knowledge	Count	1	1	2	
		% within GYY Year of Graduation	11.1%	4.8%	5.1%	
	1 Obtain certificate/degree	Count	5	11	8	24
		% within GYY Year of Graduation	55.6%	52.4%	38.9%	61.5%
	2 To transfer	Count		2		2
		% within GYY Year of Graduation		9.5%		5.1%
	3 For a new career	Count	3	3	1	7
	% within GYY Year of Graduation	33.3%	14.3%	11.1%	17.9%	
4 Increase skill for job	Count		3		3	
	% within GYY Year of Graduation		14.3%		7.7%	
7 Develop myself	Count		1		1	
	% within GYY Year of Graduation		4.8%		2.6%	
Total	Count	9	21	9	39	
	% within GYY Year of Graduation	100.0%	100.0%	100.0%	100.0%	

COURSE Courses in Major Field of Study * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
COURSE Courses in Major Field of Study	3 Neutral	Count % within GYY Year of Graduation			1 11.1%	1 2.5%
	4 Satisfied	Count % within GYY Year of Graduation	4 44.4%	16 72.7%	3 33.3%	23 57.5%
	5 Very Satisfied	Count % within GYY Year of Graduation	5 55.6%	6 27.3%	5 55.6%	16 40.0%
Total		Count % within GYY Year of Graduation	9 100.0%	22 100.0%	9 100.0%	40 100.0%

GENERAL General Education/Support Courses * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
GENERAL General Education/Support Courses	3 Neutral	Count % within GYY Year of Graduation	3 33.3%	3 14.3%	2 22.2%	8 20.5%
	4 Satisfied	Count % within GYY Year of Graduation	6 66.7%	15 71.4%	6 66.7%	27 69.2%
	5 Very Satisfied	Count % within GYY Year of Graduation		3 14.3%	1 11.1%	4 10.3%
Total		Count % within GYY Year of Graduation	9 100.0%	21 100.0%	9 100.0%	39 100.0%

LIFE Relevance of Coursework to Everyday Life * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
LIFE Relevance of Coursework to Everyday Life	2 Dissatisfied	Count % within GYY Year of Graduation	1 11.1%			1 2.6%
	3 Neutral	Count % within GYY Year of Graduation	2 22.2%	8 38.1%	1 11.1%	11 28.2%
	4 Satisfied	Count % within GYY Year of Graduation	4 44.4%	7 33.3%	8 88.9%	19 48.7%
	5 Very Satisfied	Count % within GYY Year of Graduation	2 22.2%	6 28.6%		8 20.5%
Total		Count % within GYY Year of Graduation	9 100.0%	21 100.0%	9 100.0%	39 100.0%

TEACHING Overall Quality of Teaching * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
TEACHING Overall Quality of Teaching	3 Neutral	Count % within GYY Year of Graduation		1 4.8%	2 22.2%	3 7.7%
	4 Satisfied	Count % within GYY Year of Graduation	6 66.7%	17 81.0%	3 33.3%	26 66.7%
	5 Very Satisfied	Count % within GYY Year of Graduation	3 33.3%	3 14.3%	4 44.4%	10 25.6%
Total		Count % within GYY Year of Graduation	9 100.0%	21 100.0%	9 100.0%	39 100.0%

EDUCATE Overall Quality of Education Received * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
EDUCATE Overall Quality of Education Received	3 Neutral	Count % within GYY Year of Graduation	1 11.1%			1 2.6%
	4 Satisfied	Count % within GYY Year of Graduation	4 44.4%	15 71.4%	6 75.0%	25 65.8%
	5 Very Satisfied	Count % within GYY Year of Graduation	4 44.4%	6 28.6%	2 25.0%	12 31.6%
Total		Count % within GYY Year of Graduation	9 100.0%	21 100.0%	8 100.0%	38 100.0%

OVERALL Overall College Experience * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
OVERALL Overall College Experience	3 Neutral	Count % within GYY Year of Graduation	2 22.2%	1 5.0%		3 7.9%
	4 Satisfied	Count % within GYY Year of Graduation	5 55.6%	12 60.0%	6 66.7%	23 60.5%
	5 Very Satisfied	Count % within GYY Year of Graduation	2 22.2%	7 35.0%	3 33.3%	12 31.6%
Total		Count % within GYY Year of Graduation	9 100.0%	20 100.0%	9 100.0%	38 100.0%

OVER Would You Still Choose OCC? * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
OVER Would You Still Choose OCC?	0 No	Count % within GYY Year of Graduation	1 11.1%			1 2.6%
	1 Yes	Count % within GYY Year of Graduation	8 88.9%	21 100.0%	9 100.0%	38 97.4%
Total		Count % within GYY Year of Graduation	9 100.0%	21 100.0%	9 100.0%	39 100.0%

AGAIN Would You Still Choose the Same Program of Study? * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
AGAIN Would You Still Choose the Same Program of Study?	0 No	Count % within GYY Year of Graduation		3 13.6%		3 7.5%
	1 Yes	Count % within GYY Year of Graduation	9 100.0%	19 86.4%	9 100.0%	37 92.5%
Total		Count % within GYY Year of Graduation	9 100.0%	22 100.0%	9 100.0%	40 100.0%

SCHOOL Attended College Since Graduating From OCC? * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
SCHOOL Attended College Since Graduating From OCC?	0 Have not attend	Count % within GYY Year of Graduation	7 77.8%	16 72.7%	6 66.7%	29 72.5%
	1 Another college	Count % within GYY Year of Graduation	1 11.1%	5 22.7%	2 22.2%	8 20.0%
	2 Attended OCC	Count % within GYY Year of Graduation	1 11.1%	1 4.5%	1 11.1%	3 7.5%
Total		Count % within GYY Year of Graduation	9 100.0%	22 100.0%	9 100.0%	40 100.0%

COLLEGE Name of College Attended * GYY Year of Graduation Crosstabulation

COLLEGE Name of College Attended	Count	GYY Year of Graduation			Total
		94 1994	95 1995	96 1996	
534	1		1		1
% within GYY Year of Graduation			16.7%		9.1%
2020 LAWRENCE INSTITUTE OF TECHNOLOGY	1			1	1
% within GYY Year of Graduation				33.3%	9.1%
2033 OAKLAND UNIVERSITY	2		2		2
% within GYY Year of Graduation			33.3%		18.2%
2043 OAKLAND COMMUNITY COLLEGE-AUBURN HILLS CAMPUS	1	1	1	1	3
% within GYY Year of Graduation	50.0%	16.7%	33.3%		27.3%
2054 MACOMB COMMUNITY COLLEGE	1			1	1
% within GYY Year of Graduation				33.3%	9.1%
2065 WALSH COLLEGE	1	1			1
% within GYY Year of Graduation	50.0%				9.1%
2074 UNIVERSITY OF MICHIGAN - DEARBORN	1		1		1
% within GYY Year of Graduation			16.7%		9.1%
5570 UNIVERSITY OF PHOENIX	1		1		1
% within GYY Year of Graduation			16.7%		9.1%
Total	Count	2	6	3	11
% within GYY Year of Graduation		100.0%	100.0%	100.0%	100.0%

MAJOR Program of Study After OCC * GYY Year of Graduation Crosstabulation

MAJOR Program of Study After OCC	Count	GYY Year of Graduation			Total
		94 1994	95 1995	96 1996	
87 Chemistry	1		1		1
% within GYY Year of Graduation			20.0%		11.1%
124 Computer and Information Sciences	2	2	2		4
% within GYY Year of Graduation	100.0%	40.0%			44.4%
125 Computer Science	2		2	1	3
% within GYY Year of Graduation		40.0%	50.0%		33.3%
383 Mathematics	1			1	1
% within GYY Year of Graduation				50.0%	11.1%
Total	Count	2	5	2	9
% within GYY Year of Graduation		100.0%	100.0%	100.0%	100.0%

PREPARE Academic Preparation to Continue Education * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
PREPARE Academic Preparation to Continue Education	3 Adequate	Count % within GYY Year of Graduation		1 16.7%		1 9.1%
	4 Good	Count % within GYY Year of Graduation	2 100.0%	4 66.7%	2 66.7%	8 72.7%
	5 Excellent	Count % within GYY Year of Graduation		1 16.7%	1 33.3%	2 18.2%
Total		Count % within GYY Year of Graduation	2 100.0%	6 100.0%	3 100.0%	11 100.0%

EMPLOYED Current Employment Status * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
EMPLOYED Current Employment Status	1 Full-Time	Count % within GYY Year of Graduation	8 88.9%	16 72.7%	9 100.0%	33 82.5%
	2 Part-Time	Count % within GYY Year of Graduation		2 9.1%		2 5.0%
	4 Unemployed	Count % within GYY Year of Graduation		2 9.1%		2 5.0%
	5 Out of Labor Force	Count % within GYY Year of Graduation	1 11.1%	2 9.1%		3 7.5%
Total		Count % within GYY Year of Graduation	9 100.0%	22 100.0%	9 100.0%	40 100.0%

LOOK Months Looking for a Job After Graduation * GYY Year of Graduation
Crosstabulation

		GYY Year of Graduation			Total
		94 1994	95 1995	96 1996	
LOOK Months	0		4	3	7
Looking for a Job	Had a Job		44.4%	37.5%	36.8%
	Count				
	% within GYY Year of Graduation				
1	Count		1	1	2
	% within GYY Year of Graduation		11.1%	12.5%	10.5%
2	Count		1	1	2
	% within GYY Year of Graduation		11.1%	12.5%	10.5%
3	Count		1		1
	% within GYY Year of Graduation		11.1%		5.3%
4	Count	1	1		2
	% within GYY Year of Graduation	50.0%	11.1%		10.5%
5	Count		1	1	2
	% within GYY Year of Graduation		11.1%	12.5%	10.5%
6	Count	1		1	2
	% within GYY Year of Graduation	50.0%		12.5%	10.5%
10	Count			1	1
	% within GYY Year of Graduation			12.5%	5.3%
Total	Count	2	9	8	19
	% within GYY Year of Graduation	100.0%	100.0%	100.0%	100.0%

**JOB Primary Occupational Function (Job Title) * GYY Year of Graduation
Crosstabulation**

		GYY Year of Graduation			Total	
		94 1994	95 1995	96 1996		
JOB Primary Occupational Function (Job Title)	1 Executive, Manager	Count % within GYY Year of Graduation		1 5.6%	1 2.9%	
	2 Administrative	Count % within GYY Year of Graduation		2 11.1%	1 8.8%	
	6 Technician	Count % within GYY Year of Graduation	5 71.4%	8 44.4%	7 77.8%	20 58.8%
	7 Sales	Count % within GYY Year of Graduation	1 14.3%	1 5.6%		2 5.9%
	8 Clerical, Office Support	Count % within GYY Year of Graduation		2 11.1%		2 5.9%
	10 Counselor, Social Worker	Count % within GYY Year of Graduation		1 5.6%		1 2.9%
	14 Precision Producaiton	Count % within GYY Year of Graduation		1 5.6%		1 2.9%
	77 Other	Count % within GYY Year of Graduation	1 14.3%	2 11.1%	1 11.1%	4 11.8%
	Total	Count % within GYY Year of Graduation	7 100.0%	18 100.0%	9 100.0%	34 100.0%

FIRM Primary Business Function of Employer * GYY Year of Graduation
Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
FIRM Primary Business Function of Employer	1 Communications	Count % within GYY Year of Graduation	1 14.3%	4 25.0%		5 15.6%
	2 Construction	Count % within GYY Year of Graduation		2 12.5%		2 6.3%
	3 Education	Count % within GYY Year of Graduation		1 6.3%	1 11.1%	2 6.3%
	5 Finance	Count % within GYY Year of Graduation		1 6.3%	1 11.1%	2 6.3%
	6 General Business	Count % within GYY Year of Graduation			1 11.1%	1 3.1%
	7 Government	Count % within GYY Year of Graduation	1 14.3%			1 3.1%
	8 Health Service	Count % within GYY Year of Graduation		1 6.3%		1 3.1%
	11 Manufacturing	Count % within GYY Year of Graduation	2 28.6%	2 12.5%	4 44.4%	8 25.0%
	12 Professional Service	Count % within GYY Year of Graduation	1 14.3%	3 18.8%	2 22.2%	6 18.8%
	15 Retail	Count % within GYY Year of Graduation	1 14.3%	1 6.3%		2 6.3%
	18 Social Service	Count % within GYY Year of Graduation		1 6.3%		1 3.1%
77 Other	Count % within GYY Year of Graduation	1 14.3%			1 3.1%	
Total	Count % within GYY Year of Graduation	7 100.0%	16 100.0%	9 100.0%	32 100.0%	

RELATED Job Related to Program of Study at OCC * GYY Year of Graduation Crosstabulation

			GY Y Year of Graduation			Total
			94 1994	95 1995	96 1996	
RELATED Job Related to Program of Study at OCC	1 Not At All Related	Count % within GYY Year of Graduation		3 16.7%		3 8.6%
	2 Somewhat Related	Count % within GYY Year of Graduation	3 37.5%	4 22.2%	2 22.2%	9 25.7%
	3 Highly Related	Count % within GYY Year of Graduation	5 62.5%	11 61.1%	7 77.8%	23 65.7%
Total			8 100.0%	18 100.0%	9 100.0%	35 100.0%

TRY Try to Find a Job Related to Program of Study? * GYY Year of Graduation Crosstabulation

			GY Y Year of Graduation		Total
			95 1995		
TRY Try to Find a Job Related to Program of Study?	0 No	Count % within GYY Year of Graduation	1 33.3%		1 33.3%
	1 Yes	Count % within GYY Year of Graduation	2 66.7%		2 66.7%
Total			3 100.0%		3 100.0%

WHYNOT Reason NOT Employed in Degree Field * GYY Year of Graduation Crosstabulation

			GY Y Year of Graduation		Total
			95 1995		
WHYNOT Reason NOT Employed in Degree Field	1 Already Working	Count % within GYY Year of Graduation	1 50.0%		1 50.0%
	5 Could Not Find Job Related	Count % within GYY Year of Graduation	1 50.0%		1 50.0%
Total			2 100.0%		2 100.0%

USING Using Knowledge and Skills? * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
USING Using Knowledge and Skills?	0 No	Count % within GYY Year of Graduation		3 21.4%		3 9.7%
	1 Yes	Count % within GYY Year of Graduation	8 100.0%	11 78.6%	9 100.0%	28 90.3%
Total		Count % within GYY Year of Graduation	8 100.0%	14 100.0%	9 100.0%	31 100.0%

RATING Rate Relevance of OCC Educational Experience * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
RATING Rate Relevance of OCC Educational Experience	3 Average	Count % within GYY Year of Graduation	1 12.5%	3 23.1%	4 44.4%	8 26.7%
	4 Good	Count % within GYY Year of Graduation	4 50.0%	8 61.5%	4 44.4%	16 53.3%
	5 Excellent	Count % within GYY Year of Graduation	3 37.5%	2 15.4%	1 11.1%	6 20.0%
Total		Count % within GYY Year of Graduation	8 100.0%	13 100.0%	9 100.0%	30 100.0%

DESCRIBE Rate Return on Investment * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
DESCRIBE Rate Return on Investment	4 Dissatisfied	Count % within GYY Year of Graduation		1 5.6%		1 2.8%
	6 Neutral	Count % within GYY Year of Graduation	1 11.1%	1 5.6%	1 11.1%	3 8.3%
	7	Count % within GYY Year of Graduation			1 11.1%	1 2.8%
	8 Satisfied	Count % within GYY Year of Graduation	6 66.7%	7 38.9%	4 44.4%	17 47.2%
	9	Count % within GYY Year of Graduation			1 11.1%	1 2.8%
	10 Very Satisfied	Count % within GYY Year of Graduation	2 22.2%	9 50.0%	2 22.2%	13 36.1%
Total		Count % within GYY Year of Graduation	9 100.0%	18 100.0%	9 100.0%	36 100.0%

ATTAINED Attained Short Term Educational Goals? * GYY Year of Graduation Crosstabulation

			GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
ATTAINED Attained Short Term Educational Goals?	1 Yes	Count % within GYY Year of Graduation	9 100.0%	18 100.0%	9 100.0%	36 100.0%
	Total	Count % within GYY Year of Graduation	9 100.0%	18 100.0%	9 100.0%	36 100.0%

INTEREST Interested in Taking More Courses at OCC? * GYY Year of Graduation Crosstabulation

		Count	GYY Year of Graduation			Total
			94 1994	95 1995	96 1996	
INTEREST Interested in Taking More Courses at OCC?	0 No	7		7		7
		% within GYY Year of Graduation		41.2%		20.6%
	1 Yes	Count	3	8	5	16
		% within GYY Year of Graduation	33.3%	47.1%	62.5%	47.1%
	2 Undecided	Count	6	2	3	11
		% within GYY Year of Graduation	66.7%	11.8%	37.5%	32.4%
Total		Count	9	17	8	34
		% within GYY Year of Graduation	100.0%	100.0%	100.0%	100.0%

Means

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
AGE Students Age on Day of Graduation * GYY Year of Graduation	60	100.0%	0	.0%	60	100.0%
YEARS Number of Years to Graduate From OCC * GYY Year of Graduation	60	100.0%	0	.0%	60	100.0%
HOURPAY * GYY Year of Graduation	29	48.3%	31	51.7%	60	100.0%
ANNUAL * GYY Year of Graduation	29	48.3%	31	51.7%	60	100.0%

Report

GYY Year of Graduation		AGE Students Age on Day of Graduation	YEARS Number of Years to Graduate From OCC	HOURPAY	ANNUAL
94 1994	Mean	34.63	6.237	14.373	29896.296
	N	19	19	6	6
	Std. Deviation	7.30	5.745	6.941	14437.993
95 1995	Mean	39.12	7.954	14.690	30554.765
	N	26	26	15	15
	Std. Deviation	11.17	6.090	5.168	10748.442
96 1996	Mean	35.80	7.240	17.855	37137.500
	N	15	15	8	8
	Std. Deviation	6.85	4.153	6.377	13265.092
Total	Mean	36.87	7.232	15.497	32234.457
	N	60	60	29	29
	Std. Deviation	9.18	5.516	5.859	12187.324