

Illinois Community College Board

**1999 FOLLOW-UP STUDY  
OF FISCAL YEAR 1998  
OCCUPATIONAL PROGRAM GRADUATES**

Table of Contents

	<u>Page</u>
Introduction .....	1
Occupational Areas Surveyed in FY 1999 .....	2
Part I: Statewide Analysis .....	4
Part II: Program-Specific Analysis .....	6
Conclusions and Policy Implications .....	35
Bibliography .....	40
Appendix A: Occupational Follow-up Study Overview Tables for Selected Occupational Programs .....	42
Appendix B: Statewide Occupational Follow-up Study Tables for Selected Occupational Programs by Classification of Instructional Program Code .....	45
Appendix C: College-Level Occupational Follow-up Study Tables for Selected Occupational Programs by Classification of Instructional Program Code .....	58

## 1999 FOLLOW-UP STUDY OF FISCAL YEAR 1998 OCCUPATIONAL PROGRAM GRADUATES

### Introduction

As the year 2000 approaches, extensive media coverage is expected about substantial changes that have occurred in the last decade and over the later part of the century. A couple of quotes about the impact of technology and the growing importance of people at the dawn of the new millennium reiterate the significance of education and training to organizations striving to acquire or sustain a competitive advantage.

The rapid expansion of technological advances has had one of the most profound affects on the workplace in the 1990s. . . Perhaps the greatest impact of the decade's technological revolution is that it has leveled the playing field. With all organizations having access to technology, it's a firm's people that make the difference.

Dawn Anfusio, "1990s in Review" *Workforce*, January 1999 p.53.

Human capital is, and should be, the center of any business. It's the only sustainable advantage. Everything else can be replicated easily by competitors.

Robert Reich, "Human Capital Is the Center of All Business," *Workforce*, April 1999 p.41.

A major reason that community colleges exist is to help individuals acquire the necessary skills to successfully enter, re-enter, and advance in the workforce. Community colleges cost effectively provide quality programs and services to provide Illinois business, industry, and government with a qualified workforce through occupational and vocational education programming, customized training, and business and industry services. Knowledgeable, highly skilled, creative employees are a key component for success in an increasingly competitive and global marketplace.

As a part of their ongoing accountability and program improvement initiatives, the colleges annually conduct a survey of occupational program graduates. This report provides statewide information from graduates of selected occupational programs regarding the effectiveness of their community college experiences. Data for the report were obtained from responses to a standardized survey. The survey instrument addresses attendance objective, education status, employment status, salary, employment start-up, geographic location of employment, and satisfaction with employment and components of the educational program completed. Such information has implications for colleges as they develop new program proposals and perform program review in order to ensure that they stay in step with the changing job market, thus providing for satisfactory employment and compensation for their graduates. Part I of this report provides an overall summary of survey outcomes. Part II includes an in-depth analysis of survey results for specific program areas. The Appendices provide detailed data tables derived from the results of the survey. Appendix A presents a summary of responses by college and response rates by program area. Appendix B provides information by survey item, and Appendix C presents data by both college and program.

A total of 2,918 (Table A-2) former students who graduated from 39 selected Illinois community college programs in fiscal year 1998 were surveyed in March 1999. For most graduates, this was approximately six to nine months after program completion. Graduates of the following programs were excluded from the statewide study due to small numbers of completers or few respondents:

Crop Production Operations and Management; Nursery Operations and Management; Parks and Grounds Management; Forestry Production/Processing; Fashion Merchandising; Entrepreneurship; Financial Services Marketing Operations; Industrial Marketing; General Marketing Operations; Recreation Products/Services Marketing Operations; Insurance Marketing Operations; Home Health Aide; Elder Care Provider/Companion; Custodial Services; and Parks, Recreation and Leisure Facilities Management. Removing the 29 selected graduates and their responses resulted in the utilization of 2,889 responses from a pool of 5,054 graduates. Therefore, the survey yielded a usable response rate of 57.2 percent (Table A-1). Table A-2 shows response rates by program.

The broad field of Nursing accounted for four out of five graduate respondents (80.3 percent). Hence, graduates from the remaining program areas combined accounted for the remaining 19.7 percent of the respondents. Overall results are influenced by differences in program size and in the number of graduates responding to particular questions. Percentages cited throughout the report reflect the number of responses to each question.

**Table 1**  
**OCCUPATIONAL PROGRAM AREAS SURVEYED IN FY 1999**  
**BY CIP CATEGORY**

CIP	Title
010101	AGRICULTURAL BUSINESS AND MANAGEMENT
0103	AGRICULTURAL PRODUCTION WORKERS & MANAGERS
010301	Agricultural Production Workers & Managers, General
010302	Agricultural Animal Husbandry & Production Management
010304	Crop Production Operations & Management*
010507	EQUESTRIAN/EQUINE STUDIES, HORSE MANAGEMENT
0106	HORTICULTURE SERVICES OPERATIONS & MANAGEMENT
010601	Horticulture Services Operations & Management, General
010602	Arboriculture
010603	Ornamental Horticulture Operations & Management
010604	Greenhouse Operations & Management
010605	Landscaping Operations & Management
010606	Nursery Operations & Management*
010607	Turf Management
010610	Parks & Grounds Management*
030401	FORESTRY PRODUCTION/PROCESSING*
030601	WILDLIFE AND WILDLANDS MANAGEMENT
080102	FASHION MERCHANDISING*
080301	ENTREPRENEURSHIP*

**Table 1**  
**(Continued)**

**OCCUPATIONAL PROGRAM AREAS SURVEYED IN FY 1999**  
**BY CIP CATEGORY**

CIP	Title
080401	FINANCIAL SERVICES MARKETING OPERATIONS*
0807	GENERAL RETAILING & WHOLESALING OPERATIONS
080702	Industrial Marketing*
080705	General Retailing Operations
080706	General Selling Skills and Sales Operations
080708	General Marketing Operations*
080709	General Distribution Operations
080903	RECREATION PRODUCTS/SERVICES MARKETING OPERATIONS*
081001	INSURANCE MARKETING OPERATIONS*
081105	TRAVEL SERVICES MARKETING OPERATIONS
150507	ENVIRONMENTAL & POLLUTION TECHNOLOGY
2006	CUSTODIAL*
200602	Elder Care Provider/Companion*
200604	Custodial Services*
310301	PARKS, RECREATION & LEISURE FACILITIES MANAGEMENT*
310505	EXERCISE SCIENCES/PHYSIOLOGY & MOVEMENT STUDIES
461000	CONSTRUCTION TRADES (INTEGRATED)
470501	STATIONARY ENERGY SOURCES INSTALLER & OPERATOR
5116	NURSING
511601	Nursing (R.N. Training)
511613	Practical Nurse (L.P.N. Training)
511614	Nurse Assistant/Aide
511615	Home Health Aide*
5126	MISCELLANEOUS HEALTH AIDES
512602	Medical Laboratory Aide/Phlebotomy
512604	Therapeutic Recreational Assisting

\* Excluded from state report due to low number of graduates or low response rates.

### Part I: STATEWIDE OVERVIEW

Follow-up surveys were mailed to graduates of the selected occupational programs listed on the previous page in spring 1999, approximately six to nine months after graduation. Graduates reported the following:

- < 93.8 percent were employed or pursuing additional education or both. (Table B-1.)
- < 90.0 percent of the occupational completers were employed. (Table B-2.)

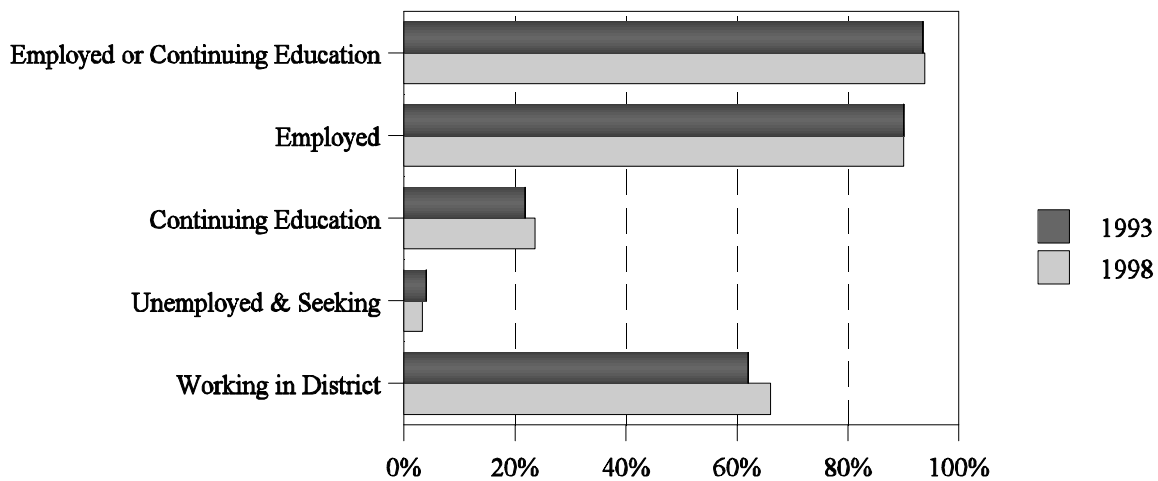
Among working graduates,

- < 82.0 percent held full-time status in their current jobs. (Table B-2.)
  - < 87.2 percent were employed in positions related to the field in which they studied at the community college. (Table B-5).
  - < 82.7 percent obtained their current positions while enrolled or after graduating. (Table B-7.)
  - < 92.3 percent were employed in Illinois. Of those, seven out of ten remained in the district where they received their training. (Table B-8.)
  - < The average salary was \$12.62 per hour, nearly two-and-a-half times the minimum wage (\$5.15 per hour). (Table B-9.)
- 
- < Graduates employed in full-time positions earned the equivalent of about \$26,800 annually.
  - < The average rate of unemployment (the percent of graduates who were unemployed and seeking work) was 3.3 percent. (Table B-2). The statewide unemployment rate was 4.0 percent in March 1999 (<http://lmi.ides.state.il.us/laus99.htm> 9/29/99).
  - < Nearly one-quarter of the respondents were pursuing additional education. Four out of five of those enrolled in further study were taking course work in a related field (Table B-4).
  - < Graduates employed in positions related to their community college program were satisfied with their current positions (4.23 on a five-point scale, with 5 being very satisfied and 0 being very dissatisfied). Including unrelated positions, job satisfaction averaged 4.19/5.00. (Table B-10.)
  - < Overall, graduates expressed satisfaction (M=4.26/5.00) with components of their program (course content, lecture/lab experiences, equipment, facilities and materials, job preparation, preparation for further education, and labor market employment information). (Table B-11.)
  - < Graduates were also satisfied with college services, such as financial aid, academic advising, career planning, transfer planning, counseling, tutoring, library/audio visual, student activities) awarding an average rating of 4.20/5.00. (Table B-12.)

Graduates from similar program areas were surveyed five years ago. Due in large part to the predominance of the nursing fields in the programs under study, an overall comparison of follow-up survey outcomes for 1998 and 1993 graduates indicates relative stability. Graduates from nursing programs are typically in high demand. Across all programs surveyed, the percentage of employed graduates was consistently high at 90 percent among both 1998 and 1993 graduates. Likewise, the percentage of employed graduates in full-time positions related to their programs of study was about the same (87.2 percent for 1998 and 88.5 percent for 1993 completers). Similarly, graduates exhibited consistently high combined levels of employment, enrolling in additional courses, or both (93.8 percent among 1998 versus 93.5 percent for 1993 graduates).

Generally more recent graduates exhibited slightly higher satisfaction ratings. Workers in both studies reported high levels of satisfaction with their jobs ( $\underline{M}$  = 4.19 for 1998 and  $\underline{M}$  = 4.08 for 1993). Likewise, graduates reported high levels of satisfaction with major program components ( $\underline{M}$  = 4.26 for 1998 completers and  $\underline{M}$  = 4.10 for 1993 graduates) and college services ( $\underline{M}$  = 4.20 for 1998 and  $\underline{M}$  = 4.00 for 1993 completers).

A slightly larger proportion of recent graduates were both employed and pursuing additional education (19.5 percent for 1998 versus 18.1 percent for 1993). A slight increase was noted in the percentage of survey respondents pursuing additional education among more recent graduates (23.6 percent among 1998 graduates versus 21.7 percent for 1993 completers). The percentage of recent graduates who were unemployed and seeking work is lower currently at 3.3 percent versus a 4.1 percent unemployment rate reported five years earlier. While economic conditions in 1994 were relatively good, unemployment levels in Illinois during spring 1999 were at or near their lowest levels in 24 years at the time of the latest survey (<http://lmi.ides.state.il.us/summjobs.htm> 5/20/99 IDES press release). A slightly higher percentage of current graduates were working in the community college district in which they received their training (66.0 for 1998 versus 62.1 for 1993). The average hourly wage of \$12.62 increased \$1.14 from five years ago for all workers. (The minimum wage increased \$0.90 per hour over the same period of time.) A larger percentage of the 1998 graduates were employed in their current position *prior* to entering their training (17.3 percent among 1998 completers and 15.9 percent for 1993 graduates) and during program enrollment (19.1 percent for 1998 completers and 15.8 percent for 1993 graduates). Selected comparisons are illustrated below.



**Figure 1.** Comparison of Selected Occupational Follow-Up Study Results for Graduates in FY 1993 & 1998

## Part II: PROGRAM-SPECIFIC ANALYSIS

One of the ways in which the Illinois Occupational Information Coordinating Committee (IOICC) provides career information is through a product known as *Horizons*. This information is currently available through compact disk and via the internet. The internet version of *Horizons* (2000) is referenced frequently throughout this section of the report. The Bureau of Labor Statistics' *Occupational Outlook Handbook* is also available on-line through the internet and frequently cited in the following pages.

**NURSING**. The broad field of nursing accounted for four out of five graduates in the current study and will be examined first in the program specific analysis. Each of the three sub-categories within the field of nursing will be addressed separately because each nursing specialty reflects a distinct level of training. Additionally, each nursing specialty (RN, LPN, CNA) is larger than any other broad program area being examined in the current study.

Background information on changes in the healthcare system which are impacting the nursing profession are included to provide context for the analysis. Demographic changes and increased longevity will contribute to rising healthcare costs which are expected to outpace the expansion of the American economy as a whole. It is anticipated that payments to hospitals will decrease as managed care organizations seek ways to expand client wellness education, augment preventative care, and provide service more cost effectively. According to an article entitled, "News and Trends in Nursing":

When large numbers of baby boomers begin to retire and become Medicare beneficiaries around the year 2010, the program will be severely stressed financially and will have difficulty providing healthcare to many people who, compared to previous generations, will be living well into their 90s and 100s . . . Within the next decade, the total amount Americans spend on healthcare will probably double to \$2.1 trillion, says a recent report by the Health Care Financing Administration . . . Currently healthcare expenses account for 13.6% of the total national economy; but by 2007, the amount will grow to 16.6% of an economy that is itself expanding every year . . . Hospitals, the largest employers of nurses, are expected to grow more slowly than will other service providers. In fact, the portion of the healthcare dollar that goes to hospitals will probably drop from 35% currently to 32% by 2001. These data indicate that more future opportunities for nurses may come from areas outside the usual institutional employers: hospitals, nursing homes, and home health agencies. [Http://www.nursingspectrum.com/ConsiderNursing/Future/trends.htm](http://www.nursingspectrum.com/ConsiderNursing/Future/trends.htm)

With increases in managed care, out-patient surgery, and shortened hospital stays, the healthcare industry continues to experience substantial change with repercussions for the nursing profession. The nursing shortages experienced by hospitals in the 1980s have changed to hospital staffing cutbacks during the mid to late 1990s. According to an article entitled, "The Changing Healthcare Market: Where Are the New Jobs":

Hospital beds are being eliminated, patients are spending less time in acute care settings, professional staffing is being reduced, unlicensed assistive personnel are

being hired in record numbers . . . Nursing, swept along in the tidal wave of healthcare reform, is having to redefine itself to remain an integral part of the new healthcare delivery system. Once the hub of healthcare, inpatient (hospital) care is becoming far more specialized; and more treatment is delivered at home, in ambulatory care clinics, in hospices, and in the newly emerging hybrids called subacute care units. . . What does this mean for nurses? It means that there will be fewer jobs in acute care hospitals, and that those who remain in those positions will require specialized skills and perhaps advanced training and education. But it also means there will be more opportunities for nurses opening up in other settings, such as outpatient centers, home health care, and ambulatory clinics. (<http://www.nursingspectrum.com/ConsiderNursing/Future/changing.htm>)

Likewise, the changing healthcare delivery scene also has implications for nursing preparation programs in areas such as technical and non-technical training provided, diversifying clinical site selection, and strengthening career counseling. The three community college system nursing programs included in this analysis arranged in order from most to least intensive training are:

<u>Program Area</u>	<u>CIP Code</u>
Nursing (R.N. Training)	511601
Practical Nurse (L.P.N. Training)	511613
Nurse Assistant/Aide (C.N.A. Training)	511614

**Registered Nursing.** Associate Degree Registered Nursing (RN) is the highest level of training in the profession offered by community colleges. It is also the largest occupational program offered in the Illinois community college system. Registered Nurses provide direct patient care to individuals with illnesses or injury and also educate through

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*In Illinois, "Registered Nurses" is one of 50 occupations expected to provide the most job openings each year. Prospects for entry-level positions should be good, especially for those willing to work evening and night shifts. (Horizons,2000)*

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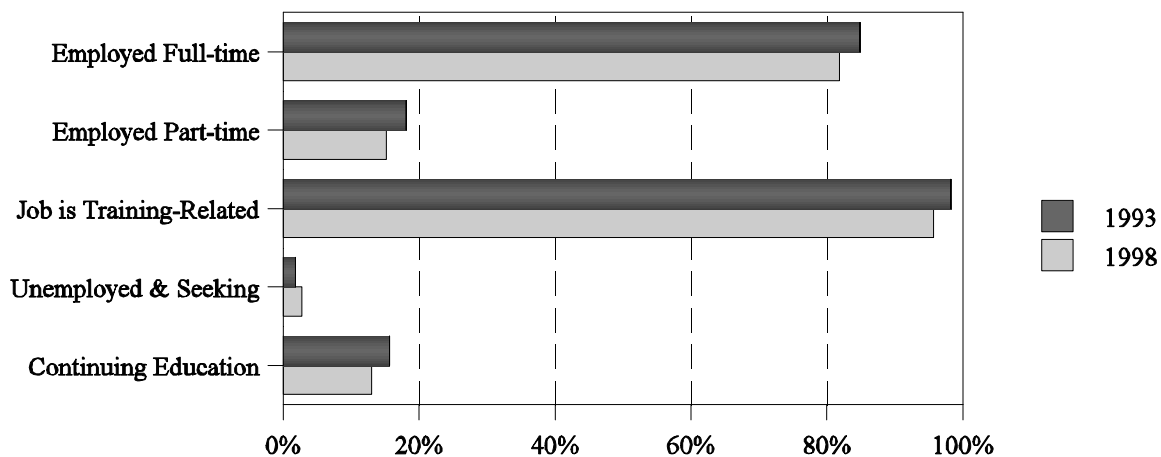
wellness programs. RNs may also direct or supervise the activities of other nursing staff or healthcare workers. Duties vary depending on the work setting: hospitals, ambulatory surgicenters, emergency medical centers, doctors' offices and clinics, nursing homes, home health care, schools, industry, etc. Generally, responsibilities include patient care, health care instruction, patient counseling, initial assessment, providing treatment planning assistance, implementing treatment, outcomes assessment, adjusting treatment plans, analyzing lab reports, and operating various types of specialized equipment such as respirators and EKG machines. (*Horizons*, 2000)

Faster than average employment growth for registered nurses is expected both in Illinois and across the country. The Substate Employment Projections System (1999) generates a list of job openings in Illinois requiring an associate degree. Registered Nursing was at the top of that list as having the most annual openings through 2006 (3,679/year). Likewise, national data show Registered Nursing as one of the five occupations projected to have the largest number of new jobs through the year 2006 according to the *Occupational Outlook Handbook* (1998-99) (<http://stats.bls.gov/oco/ocos083.htm>). Nationally, Registered Nursing is the largest healthcare occupation with over 1.9 million jobs (1996).



Approximately 107,915 Registered Nurses were employed in Illinois. (*Horizons*, 1999) Outlook depends on rapid expansion of the health services industry due to the growing and aging population, increased spending on health care, and advances in medical technology. Employment in areas other than hospitals, such as long-term care facilities, home care settings and ambulatory care, is expected to increase. The most rapid employment growth is expected in home health care. Because this occupation is very large, many new job openings will result. Additional openings will occur as experienced nurses leave the work force. Nationwide, about two out of three jobs remained in hospitals in both inpatient and outpatient departments. (*Occupational Outlook Handbook*, 1998-99)

Nearly two-thirds of the 1998 Registered Nursing graduates responded to the survey (N = 1,293). RN results were provided by 41 colleges. While results for 1998 Registered Nursing graduates were strongly positive, outcomes for graduates from five years ago tended to be slightly higher. For 1998 graduates, 95.6 percent were either employed, continuing their education, or both. Results are comparable to those noted for 1993 completers (97.2 percent). Overall employment levels were consistently high with 94.1 percent employment for 1998 graduates and 96.7 percent employment among 1993 graduates. Fewer than two out of ten held part-time positions for current and 1993 RN graduates. Nationally, about three out of ten RNs worked part time. (*Occupational Outlook Handbook*, 1998-99) Among working graduates, 95.7 percent of 1998 completers and 98.2 percent of 1993 graduates were employed in the field. Among the 52 graduates from 1998 who were working outside the field, frequently cited reasons included: "other" (N = 12), didn't pass licensure test (N = 9), preferred to work in another field (N = 7), employed in a temporary position (N = 7), found better pay in another field (N = 5), and five who did not specify a reason. The unemployment rate was 2.7 percent for 1998 graduates and 1.8 percent for 1993 graduates just after they finished their training.



**Figure 2.** Registered Nursing Graduates: FY 1993 & FY 1998

Approximately three out of four RN graduates in both groups began their current positions after degree completion. The rate of obtaining current employment after degree completion was 70.3 percent for 1998 graduates and 77.4 percent for 1993 graduates. Nursing is a licensed/regulated profession. Results suggest that registered nursing program graduates seem to be following career

ladders where individuals begin working in the field with lower levels of certification and obtain additional training to position themselves for career advancement opportunities.

A slightly larger group of 1998 RN graduates were pursuing additional education (15.6 percent versus 13.0 percent for 1993 graduates). For both groups of graduates, nine out of ten engaged in continuing education were acquiring additional skills in the field of nursing.

Average salaries have risen modestly for community college registered nursing program graduates. Current graduates employed full-time earned \$15.09/hour or the equivalent of \$31,390 annually versus \$14.00/hour or \$29,120 annually for 1993 completers just after graduating. Earnings for community college program graduates compare favorably with all entry-level RNs in the state. According to the *1996 Occupational Wage Survey for Illinois*, entry-level salaries for nurses range from \$11.60-\$15.00/hour, depending on the work setting. Additional wage data for experienced registered nurses in Illinois from the *Biennial Survey of Illinois Registered Nurses* (1996) indicate that staff nurses earned an average salary of \$18.30/hour. The *Biennial Survey* reports the lowest paying nursing position was an office nurse at \$15.00/hour and the highest pay went to nurse anesthetists at \$35.69/hour — a specialty which requires advanced training. (*Horizons*, 2000)

Community college RN graduates employed in nursing positions were satisfied with their jobs. ( $\bar{M}$  = 4.25 in 1998 and  $\bar{M}$  = 4.16 in 1993). Overall, RN graduates were also satisfied with the major program components ( $\bar{M}$  = 4.16 in 1998 and  $\bar{M}$  = 4.04 in 1993). Among program components, labor market information was rated lowest among both groups of RN graduates, but was still in the satisfied range ( $\bar{M}$  = 3.87 in 1998 and  $\bar{M}$  = 3.66 in 1993). Similarly, graduates were satisfied with services provided by the colleges ( $\bar{M}$  = 4.09 in 1998 and  $\bar{M}$  = 3.97 in 1993).

**License Practical Nursing.** Licensed Practical Nurses (LPNs) under supervision assist in providing patient care to individuals with illnesses, injury, or disability. Registered nurses or physicians oversee the work of LPNs who administer designated medications, monitor equipment, change dressings, take temperatures and blood pressures, and assist patients with personal hygiene. Private duty LPNs care for a single patient in the home or hospital. They may do general housekeeping as well. LPNs are one-year certificate programs. (*Horizons*, 2000)

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*In Illinois, Licensed Practical Nurses is one of 50 occupations expected to provide the most job openings each year. . . . Due to the continued rapid expansion of the entire health care industry, opportunities for licensed practical nurses are expected to remain good. (Horizons, 2000)*

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According to the *Occupational Outlook Handbook* (1998-99) and *Horizons* (2000), the employment outlook for LPNs is good with faster than average growth through 2006, both nationally and in Illinois. LPN job opportunities in hospitals are expected to decrease as further inpatient care reductions occur. Employment in nursing homes is expected to grow much faster than the average. Likewise, much faster than average growth is also expected in home healthcare services. This is in response to a growing number of older persons with functional disabilities, consumer preference for care in the home, and technological advances which make it possible to bring increasingly complex treatments into the home. As in most other occupations, replacement needs will be the main source

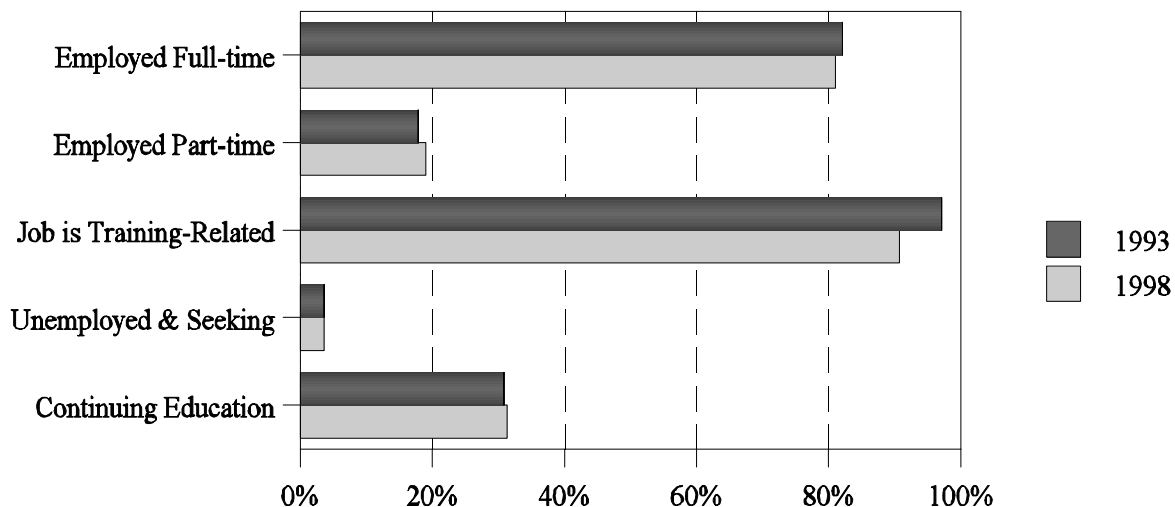
of job openings. In Illinois there are over 29,735 practicing LPNs with over 71 percent of them currently employed by either hospitals or nursing homes. (*Horizons*, 2000)

LPN graduates had a response rate of 52.6 percent. Twenty-six colleges provided information on their LPN graduates. Ninety-four percent of the LPN graduates were either employed, enrolled in additional education, or both. Nine out of ten LPN graduates were working. Nearly one-third were taking additional coursework. One-quarter of the graduates were both working and pursuing additional education. The unemployment rate for LPNs was 3.6 percent. Among the 39 LPN graduates employed in unrelated positions, the following were frequently listed: in temporary positions (N = 12), did not pass the licensing test (N = 8), found a better paying position in another field (N = 6), and preferred not to relocate (N = 5). Three out of four working LPN graduates started their current positions after program completion. Nine out of ten were employed in Illinois.

LPN graduates employed full-time earned \$11.61/hour or about \$24,150 annually. Community college graduates wages compare favorably with other new entrants, as well as continuing employees. According to *Horizons* (2000), starting wage in Illinois is around \$8.50/hour. According to the 1996 Occupational Wage Survey for Illinois, LPNs working in hospitals earned an average salary of about \$10.20/hour. LPNs working in doctor's offices earned about \$10.00/hour. A national survey conducted by the Bureau of Labor Statistics in 1997 reported that licensed practical nurses earned an average salary of about \$11.80/hour.

LPNs working in a related position were satisfied with their positions ( $\bar{M} = 4.23$ ). LPN graduates were also satisfied with major program components ( $\bar{M} = 4.22$ ). Labor market information provided was the least highest rated, but still in the satisfied range ( $\bar{M} = 3.95$ ). LPN graduates were also satisfied with the services the college provided ( $\bar{M} = 4.28$ ).

Comparisons between 1998 LPN graduates with 1993 completers reveals more similarities than differences. A slightly larger percentage of recent graduates were enrolled in continuing education. Unemployment levels remained low in both years at 3.6 percent. Full-time employment levels were within 1 percent of one another. The rate of training-related placements was somewhat higher in 1993.



**Figure 3:** Licensed Practical Nursing Graduates: FY 1993 and 1998

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*Nursing aides is one of 50 occupations expected to provide the most job openings each year in Illinois. . . Opportunities for qualified nursing assistants should be good, particularly in areas of long-term and home health care. (Horizons 2000)*

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**Nurse Assistant/Aide/CNA.** Nurse assistant training is provided through short-term certificate programs. Nursing assistants perform routine patient care and housekeeping. Under the direction of a registered nurse or physician, their duties include basic healthcare, such as assisting patients in getting out of bed and walking; assisting patients with personal hygiene; taking temperatures; serving food and

assisting in feeding; and cleaning rooms and changing bed linens. In Illinois, over 58,535 people are employed in this large occupation. (*Horizons 2000*)

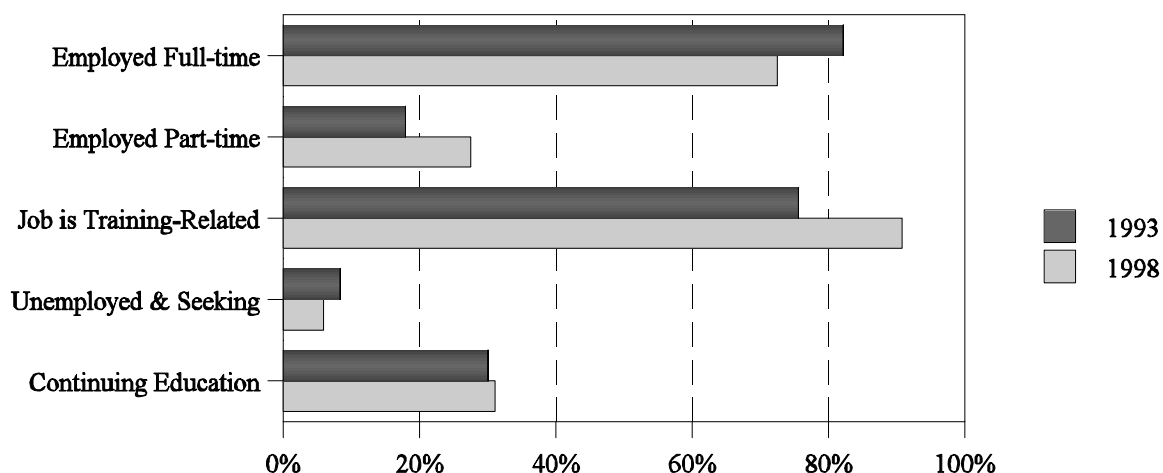
Nationally and in Illinois, growth much faster than average growth is expected through 2006. A growing elderly population and the accompanying expansion of long-term care facilities/programs and home healthcare should impact the occupation. Additional opportunities may arise as nursing assistants assume duties previously performed by more highly trained nursing staff. Many openings will also occur as individuals transfer to other occupations. (*Horizons 2000*)

The response rate for CNA graduates was a relatively low at 43.7 percent. Eighteen colleges provided information on their nursing assistant program graduates. Nine out of ten graduates who responded were either employed, enrolled in additional education, or both. Three-quarters of the working graduates were employed in full-time positions. Nearly three-quarters of the graduates were working in a related field. Of the 122 graduates working in an unrelated field, the following were the most frequently cited reasons: preferred to work in another field (N = 27), other (N = 26), found a better paying job in another field (N = 23), working in a temporary position (N = 17), chose not to respond (N = 10), and did not pass licensure test (N = 8).

Six out of ten graduates attained their current job after program completion. Eighty percent of working graduates were employed in the district where they received their training. Community college CNA graduates working full-time earned \$8.40 per hour or \$17,472 annually. According to *Horizons* (2000), the average starting wage for CNAs is about \$5.40/hour. The national average salary of nursing assistants in 1997 was \$7.50/hour. According to the *1996 Occupational Wage Survey for Illinois*, average salaries for nursing assistants ranged from \$5.70-\$7.00/hour. (*Horizons 2000*)

Graduates working in a related field were satisfied with their positions ( $\underline{M} = 4.22$ ). CNA graduates were among the most satisfied with the programs they completed ( $\underline{M} = 4.46$ ) and the services the colleges provided ( $\underline{M} = 4.35$ ).

A comparison between 1998 and 1993 graduates shows more recent graduates had lower unemployment, slightly greater part-time employment, were working more in the healthcare field, and both groups of graduates had similar continuing education patterns.



**Figure 4.** Nurse Assistant Graduates: FY 1998 and 1993

#### **Medical Laboratory Aide/Phlebotomy.**

Medical assistants' duties vary with their employer. They assist in examinations, sterilize instruments, and maintain medical records. Medical assistants participate in the patient care process by providing routine treatment and performing laboratory or clerical tasks. Under a physician's direction, they may give injections, assist in collecting samples for analysis (e.g., phlebotomy), perform standard laboratory tests, and order and maintain supplies. Duties often overlap with those performed by medical secretaries (more clerical emphasis) and nurses (more clinical emphasis). (*Horizons, 2000*)

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*"Medical assistants" is one of the top 50 fastest growing occupations in the state. Nationally, and in Illinois, employment of medical assistants is expected to increase much faster than average through 2006. Opportunities should be good for those who have completed a formal training program. (Horizons, 2000)*

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Two community colleges had Medical Laboratory Aide/Phlebotomy program graduates in fiscal year 1998, and only one program had respondents (20) which yielded a combined statewide response rate of 43.5 percent. The small number of respondents should be kept in mind as results are reviewed. All the graduates were either working, pursuing additional education, or both. Two-thirds began their positions after completing their program. Seven out of ten working graduates were employed in full-time positions. Eight out of ten working graduates were working in a related field. Among the four graduates working outside the area they were trained in, the following reasons were identified: other (N = 2), found a better paying job in another field (N = 1), and could not find a job in the field (N = 1).

Community college Medical Laboratory Aide/Phlebotomy program graduates employed in full-time positions earned \$9.72/hour or the equivalent of \$20,220 annually. Comparative data sources indicate that earnings vary widely, depending on experience, skill level, and location of employment. According to a 1997 national survey, average hourly wages for medical assistants with less than two years of experience ranged from \$8.07-\$10.90 an hour. (*Horizons, 2000*)

Medical Laboratory Aide/Phlebotomy program graduates were satisfied with their employment ( $M = 4.25$ ). They were among the most satisfied with the major components of the programs they completed ( $\underline{M} = 4.68$ ). Medical Laboratory Aide/Phlebotomy graduates were satisfied with the services they received ( $\underline{M} = 4.15$ ). They found the career planning aspects of the services they received was rated the lowest ( $\underline{M} = 3.86$ ).

Compared to graduates from the same programs five years earlier, in both years, all graduates were either working, pursuing additional education, or both. Likewise, similar levels of employment were evident among both groups (1998 = 100 percent and 1993 = 96.2 percent); the percent of those employed out of district for current graduates ( $N = 4$  or 21.1 percent) was less than half of the level for 1993 graduates ( $N = 12$  or 54.5 percent).

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*Nationally, and in Illinois, employment in the field of recreational therapy is expected to increase faster than average through 2006. Opportunities in the field of recreational therapy are expected to be excellent. (Horizons, 2000)*

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### **Therapeutic Recreational Assisting.**

Therapeutic recreational assistants help recreational therapists use social, cultural, and recreational activities to rehabilitate and restore patients' physical and emotional health. Therapeutic Recreational Assistants help plan and conduct activities such as athletics, choreographed movement, arts and crafts, etc., to assist individuals in their recovery from or

adjustment to illness or disability. Activities are designed to improve patients' mental outlook and physical well-being. As the therapy field grows, standard educational requirements are being established and a college degree is becoming more necessary. (Horizons, 2000)

Therapeutic Recreational Assisting graduates were reported by two community colleges and, with ten respondents, the response rate was 76.9 percent. The small number of respondents should be kept in mind as results are reviewed. All the graduates were either employed, enrolled in further training, or both. One third were both working and going to school in a related program. Seventy percent were working in a position related to their training. All completers were employed with seven of ten working in full-time positions. The reasons provided for working outside the area for three who were not in a related position were: previously worked in the field but changed, could not find a position in the field, and no reason provided. All were working in Illinois with eight out of ten employed in the district where they were trained. The point in time when graduates began their current position was relatively evenly distributed (before  $N = 3$ ; during  $N = 4$ ; and after  $N = 3$ ).

Community college Therapeutic Recreational Assistant program completers employed full-time earned \$9.03/hour or about \$18,780 annually. Neither *Horizons* (2000) nor the *Occupational Outlook Handbook* (1998-99) specifically address the occupation of therapeutic recreational assisting. Available information about recreational therapists, who would typically supervise recreational assistants and health aides, is furnished here to provide some context for the community college salaries. Recreational therapists working for Illinois state government in 1996 received an entry-level wage of \$22,620/year. According to a survey conducted by the American Therapeutic Recreation Association, salaries for beginning therapists averaged around \$23,960/year. (Horizons, 2000) General information on health aides from 1996 indicate median annual earnings of full-time salaried health aides and physical therapist aides were \$16,000. The middle 50 percent earned between

\$13,000 and \$21,000 (*Occupational Outlook Handbook*, 1998-99). These data indicate that community college therapeutic recreational assisting respondent's salaries were competitive.

Satisfaction with employment for those working in the field (N = 6) among the therapeutic recreational assisting graduates was among the lowest in the study ( $\underline{M}$  = 3.50). Overall, graduates were more satisfied with the components of the programs they completed ( $\underline{M}$  = 4.34). Equipment, facilities, and materials were rated relatively low ( $\underline{M}$  = 3.89), but still in the satisfied range. Therapeutic Recreational Assistant graduates were satisfied with college services ( $\underline{M}$  = 4.02). Career planning was the lowest rated service ( $\underline{M}$  = 3.63).

Comparing recent graduates with those from five years ago shows similar results: in employment, continuing education, or both (100 percent for 1998 and 90 percent in 1993); employment (100 percent in 1998 and 90.0 percent for 1993); and employment in related areas (70 percent in 1998 and 75 percent in 1993). Eighty percent of the 1998 graduates were employed in the district where they completed their training compared to about two-thirds in district employment among 1993 completers.

**AGRICULTURE.** There were 270 agriculture-related graduates from ten programs who responded to the current Occupational Follow-up Survey. Graduates received training in a variety of agricultural occupations. Agriculture and related industries are an integral part of the Illinois economy. According to the Illinois Department of Agriculture:

Marketing of Illinois' agricultural commodities generates more than \$9 billion annually. Illinois' 76,000 farms cover more than 28 million acres -- nearly 80 percent of the state's total land area . . . Illinois is a leading producer of corn, soybeans, and swine. Corn accounts for nearly 40 percent of that total. Marketing of soybeans contributes about one-third, with the combined marketings of livestock, dairy and poultry generating about 23 percent . . . Billions more dollars flow into the state's economy from agriculture related industries, such as farm machinery manufacturing, agricultural real estate, and production and sale of value-added food products. Rural Illinois benefits principally from agricultural production, while agricultural processing and manufacturing strengthen urban economies. . . Food processing is the state's number-one manufacturing activity, adding almost \$13.4 billion annually to the value of Illinois' raw agricultural commodities. Nationally, Illinois ranks second in food processing. Most processors are located in the Chicago metropolitan area, which contains one of the largest concentrations of food-related businesses in the world. (<http://www.agr.state.il.us/agfacts.html>)

Recent events are a reminder of the potentially turbulent nature of the agriculture industry. Natural disasters, price fluctuations, federal farm policy changes, and a variety of other factors impact the industry. As reported by Reuters News Service, in October 1999 a record \$8.7 billion farm rescue package, the second farm bail-out in a year, was signed into law to offset U.S. crop disasters and ongoing low prices. A near record soybean harvest is forecast to bring the lowest average price since the agricultural recession of the mid-1980s. A global grain glut and weak markets for U.S. exports have depressed prices. One year ago farmers received \$5.9 billion in emergency aid as grain and hog prices collapsed under the weight of a global grain glut and economic turmoil in countries that ordinarily are a major market for U.S. farm exports. Prices are not expected to recover until next

autumn, if then. Recent events are expected to prompt a review of federal farm policy. (<http://biz.yahoo.com/rf/991022/y5.html> “Clinton Signs U.S. Farm Bailout,” Charles Abbott, October 22, 1999, Reuters Limited, London, UK)

Continued consolidation is expected in the highly efficient farming industry as the trend toward fewer and larger farms continues. The farming industry relies increasingly on technology and science and progressive management to maintain profitability. According to *Horizons 2000*, fewer than 10 percent of the agricultural graduates enter production agriculture; most work in non-farm jobs that are closely related to agriculture.

### **Agricultural Business and Management.**

These programs are designed to develop management skills for a diverse group of workers in both farm and off-farm ag-related industries. The nature of the work varies widely based on employer. Training leads to employment opportunities in off-farm businesses in sales, service, finance, and engineering in a range of agri-businesses including fertilizer, machinery or seed dealers, grain elevator operators, bank officers, etc. Managers of farms guide and assist farmers and

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*Nationally, employment of farm managers is expected to continue to decline through the year 2006. Most job openings will result from the need to replace workers who retire or leave the occupation for economic or other reasons. (Occupational Outlook Handbook 1998-99) Predicting employment for off-farm workers is more challenging due to the variety of potential employers.*

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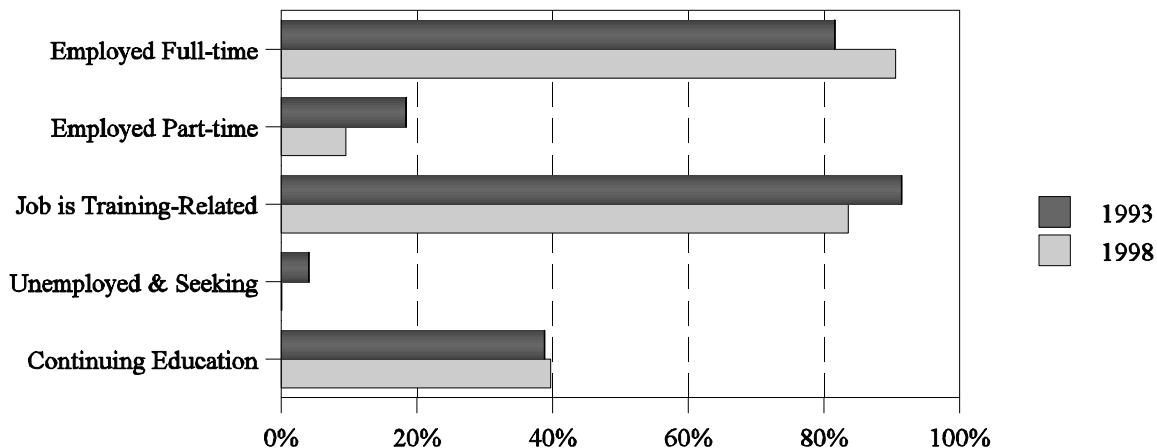
ranchers in maximizing the financial returns by managing the day-to-day activities. Their duties and responsibilities vary substantially based on a number of factors including, farm size, independence of the operation, crops and/or livestock grown/raised, etc. The economic successes and failures of area farmers influence spending patterns at industry-related off-farm businesses employing agri-business and management graduates.

There were 78 Agri-business and Management respondents from nine Illinois community colleges yielding a response rate of 79.6 percent. Ninety-seven percent of the graduates were either working, enrolled in further coursework, or both. One-quarter of the graduates were both employed and enrolled in further education. Eight out of ten graduates were working. All 14 of the remaining Agri-business and Management graduates were not seeking employment. Ninety percent of working graduates were employed in full-time positions. Among employed graduates, 83.6 percent were working in a position related to their community college training. There was a variety of reasons for working outside the field including: found better paying job in another field (N = 3), took another job to get preferred work hours (N = 2), preferred to work in another field (N = 2), could not find job in the field (N = 1), working a temporary job (N = 1), and “other” (N = 1). Almost one-half of the graduates began their current positions after graduation. Nearly all graduates worked in Illinois with seven out of ten employed in the district where they completed the program.

Community college graduates working full-time earned \$8.93/hour or the equivalent of about \$357/week or \$18,575 annually. According to the *Occupational Outlook Handbook* (1998-99), salaries vary widely. Workers across all experience levels in full-time, salaried farm manager positions reported median earnings of \$485 a week in 1996. The middle half earned between \$325 and \$650 a week.



In a trend noted in several agricultural occupations, satisfaction with employment was actually somewhat higher for graduates working outside the field ( $\underline{M} = 4.44$ ) than those employed in agri-business and management positions ( $\underline{M} = 4.14$ ). Agri-business and Management graduates were satisfied with the programs they completed ( $\underline{M} = 4.25$ ) and college services ( $\underline{M} = 4.18$ ).



**Figure 5.** Agricultural Business and Management: FY 1993 & FY 1998

Comparisons between current Agri-business and Management completers and those from five years ago indicates a slight increase in both overall and full-time employment, a slight decrease in training-related placements, and stability in enrollment in further education with nearly four out of ten enrolling among both groups of graduates.

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*In Illinois, overall employment of farmers and ranchers is expected to increase slightly slower than the average for all occupations through 2006. Nationally, employment for farmers is expected to decline slightly. Despite a slight decline in employment growth, in Illinois, "farmers" is one of 50 occupations expected to provide the most job openings each year. (Horizons, 2000)*

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#### **Agricultural Production Workers and Managers.**

General Agricultural Production programs prepare individuals to plan and cost-effectively use resources, such as land, water, chemicals, machinery, and labor, in the production of plant or animal products. The agricultural production industry accounted for 134,734 jobs in Illinois in 1996. About 85 percent of these workers were self-employed farmers. (Horizons, 2000) While these are among the more traditional agricultural fields, they require a range of skills and knowledge in areas such as chemistry, computer

technology, accounting, government rules and regulations, and a mechanical aptitude.

Ten community colleges reported results from 43 Agricultural Production Workers and Managers with a response rate of 56.6 percent. Nearly all graduates were working, going to school, or both. Nine out of ten were employed. The remaining five graduates were not actively seeking employment.

Fourteen percent were both employed and pursuing additional education. Nearly one-quarter enrolled in additional coursework. Nine out of ten were working in an agricultural production-related position. Little information was available about the four graduates working in an unrelated occupation as three listed "other" as their reason and one was in a temporary job. The level of employment in their current position prior to starting college was the highest for Agricultural Production graduates. Six out of ten workers held their present jobs prior to program entrance, which suggests that these programs may be meeting the needs of family farmers. Nine out of ten were working in Illinois.

Community college Agricultural Production graduates working full-time earned \$8.02/hour or \$321/week or approximately \$16,680 annually. These wages are on the low end of all graduates responding to the current survey. Getting accurate information on salaries in this area is challenging since earning can vary substantially from one year to the next and even among localities due to the impact of weather conditions. The Illinois Department of Agriculture reports that the average realized net income for farmers, including all levels of experience, in 1994 was \$25,712/year. (*Horizons*, 2000) Full-time, salaried farm managers, with the exception of horticultural managers, had median earnings of \$485 a week in 1996. The middle half earned between \$325 and \$650 a week. The highest paid 10 percent earned about \$760 a week in 1996, while the lowest paid 10 percent made less than \$205 a week (*Occupational Outlook Handbook*, 1998-99)

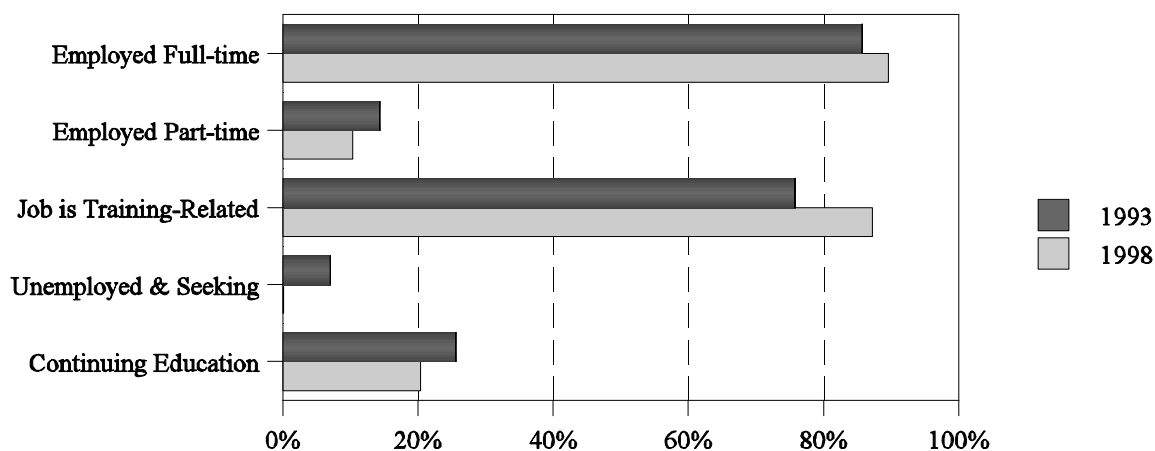
Agricultural Production graduates working in the field were satisfied with their work ( $\bar{M} = 4.12$ ). They were also satisfied with the major components of the programs they completed ( $\bar{M} = 4.23$ ) and services provided by the colleges ( $\bar{M} = 4.26$ ).

**Agricultural Animal Husbandry and Production Management.** Agricultural Animal Husbandry Production programs prepare individuals to manage, raise, and breed livestock. According to the Illinois Department of Agriculture, nearly 10 percent of Illinois farms raise swine. Beef cows are found on about 23 percent of farms, while about 3 percent have dairy cows. Agricultural Production Workers and Managers and Animal Husbandry and Production Management are closely related fields. Note that labor market information and earning data cited in the prior description, in conjunction with Agricultural Production Workers and Managers, are applicable here also.

Agricultural Animal Husbandry and Production Management is a relatively small program of study. Programs in this area by Black Hawk College, John Wood Community College and Parkland College combined to produce 11 survey responses and a response rate of 42.3 percent. Ninety percent of the graduates were working and all of them were employed full-time. Eight out of ten were in a related position. One graduate found a better paying job in another field, and the other individual preferred not to relocate for work. Just one graduate was enrolled in further education and was studying in a related field. The point in time when graduates began their current position was relatively evenly distributed (before = 3; during = 4; and after = 3). Eight out of ten working graduates were employed in Illinois. Agricultural Animal Husbandry and Production Management graduates earnings were modest at \$7.50/hour for full-time workers or about \$300/week or \$15,600 annually. *Graduates earnings were very near the bottom of the occupations covered in the survey.*

Satisfaction ( $M = 3.75$ ) among individuals working in the field of agricultural animal husbandry were among the lowest in the study, but were still in the satisfied range. Agricultural animal husbandry graduates were satisfied with the programs they completed ( $M = 4.30$ ) and college services ( $M = 4.45$ ).

**Overall Comparison of Combined Agricultural Production Results With Those from Five Years Ago.** (Four-Digit CIP) Comparing current Agricultural Production results with those from five years ago requires combining current Agricultural Production Workers and Managers with Agricultural Animal Husbandry and Production since the last report was less detailed than the current one (four-digit versus six-digit CIP program identifier). Results from the Combined Agricultural Production (CIP 0103) area show current workers had higher levels of employment (88.9 percent for 1998 and 81.4 percent for 1993), more full-time employment, more training-related placements, and less involvement in continuing education. Among current graduates, the unemployed rate was zero. Six current graduates were not seeking employment.



**Figure 6.** Combined Agricultural Production  
Managers & Animal Husbandry: FY 1993 & FY 1998

**Equestrian/Equine Studies, Horse Management** Equestrian Studies is a specialized program which prepares individuals to care for and ride horses and to manage their training, breeding, and housing.

Black Hawk College operated the only community college program in the state with eight of twelve graduates responding (66.7 percent). Seven of the eight graduates were working and two were pursuing additional education. One other had taken additional coursework since graduation, but was not enrolled at the time of the survey. Three-quarters were employed in the field. There were two graduates working in another field. One indicated that he was working a temporary job, and the other found a better paying position in another field. Nearly three-quarters began their current jobs after program completion. All Equestrian program graduates remained in Illinois, but worked outside the local community college district where they studied. *The full-time worker reporting wages earned \$7.40/hour or \$15,390 annually for the lowest wages of any occupation in the survey.* Directly comparable wage data were not readily available. For the general category of animal caretakers, the

entry salary rate is usually minimum wage. Those with some experience may start slightly higher. (*Horizons*, 2000)

Those working in the field were satisfied with their jobs ( $\underline{M} = 4.40$ ). Graduates were also equally satisfied with the programs they completed ( $\underline{M} = 4.38$ ) and college services ( $\underline{M} = 4.38$ ).

### **Horticulture Services Operations and Management General.**

Horticultural workers plant and care for trees, bushes, vegetables, fruits, and other plants. They may spray and fertilize plants or sell them to the public. They may also manage or supervise others in field work, retail nurseries, greenhouses, or related businesses.

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*In Illinois, employment of horticultural workers is expected to increase much faster than the average for all occupations through 2006. Those individuals with some formal education or training will have the best chances for management positions. (Horizons 2000)*

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Fifty-two Horticulture graduates from ten community colleges returned surveys for a response rate of 70.3 percent. Eight out of ten graduates were either employed, attending classes, or both. A relatively low 72.5 percent of the Horticulture graduates were working at the time of the survey. This is tempered by the fact that they also exhibited the highest percentage of completers not seeking employment (23.5 percent) mostly because they were taking additional coursework. Overall, among those both working and not working, nearly one-third of the graduates were currently enrolled in additional education primarily in related programs. Similarly, 83.8 percent of employed graduates were employed in Horticulture-related positions. Six graduates were working in other fields: two found better pay elsewhere, one was working in a temporary job, and the others had unspecified ( $N = 2$ ) or health related ( $N = 1$ ) reasons for choosing another occupational area. About three-quarters of the working Horticulture graduates started their jobs either while enrolled or after graduation.

Horticulture graduates from community colleges working in full-time positions had average earnings of \$10.46 an hour or the equivalent of \$21,760 annually. Wages vary with type of employer, area of specialty, and extent to which supervisory or management responsibilities are involved. Starting wages in Illinois for horticulture workers averaged about \$5.50/hour. Average wages range from \$6.50-\$8.00/hour according to the *1996 Occupational Wage Survey for Illinois*. (*Horizons* 2000) Salaries for community college Horticulture graduates point toward completers assuming more supervisory or managerial roles in the horticulture industry. According to the University of Minnesota, there are many employment opportunities in the horticulture industry, and salaries are as varied as the positions. Starting horticulturists and landscape designers have a salary potential of \$20,000 - \$25,000 per year (<http://www.crk.umn.edu/academics/Hort/hort2.htm>). Information provided by Purdue University (IN) estimates that starting salaries in the horticulture and landscape field are between \$23,000 and \$31,000, depending on experience (<http://www.purdue.edu/UNS/html4ever/9812.Ag.briefs.html>).

Job satisfaction levels ( $\underline{M} = 4.41$ ) for those working in the horticulture industry were among the highest in the survey. Horticulture graduates were also satisfied with the major components of their programs ( $\underline{M} = 4.35$ ) and the services the colleges provided ( $\underline{M} = 4.39$ ).

**Arboriculture.** Arboriculture is a specialty area focusing on the care of woody plants and trees, including their planting, pruning, and removal. Graduates are knowledgeable about tree and site selection, site preparation, and disease and insect control. There are a variety of potential employers, including nurseries, landscapers, utilities, forestry departments, and other governmental agencies, as well as self-employment.

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*Generally, Horizons (2000) and the Occupational Outlook Handbook (1998-99) project growth in horticulture-related industries through 2006.*

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Southeastern Illinois College, the College of Lake County, and William Rainey Harper College were the three colleges with active arboriculture programs. This is a small program and ratings are based on seven completed surveys that corresponds with a response rate of 77.8 percent. All seven were working in full-time positions, and five were in related jobs. Among those working outside the field, one found a better paying job in another field and the other was not successful locating a job in the field. Six out of seven Arboriculture graduates found their current positions either while enrolled or after program completion. The six full-time workers who furnished salary information had above average earnings at \$13.05 per hour or about \$27,150 annually. There are a variety of positions that relate to this major. Salary information from a few sources follow: forestry technicians and aides who worked for the Federal Government in 1997 averaged about \$28,300. (*Occupational Outlook Handbook*, 1998-99) According to the University of Minnesota, there are many employment opportunities in the horticulture industry, and salaries are as varied as the positions. Starting horticulturists and landscape designers have a salary potential of \$20,000 to \$25,000 per year (<http://www.crk.umn.edu/academics/Hort/hort2.htm>). Information provided by Purdue University (IN) estimates that starting salaries in the horticulture and landscape field are between \$23,000 and \$31,000, depending on experience (<http://www.purdue.edu/UNS/html4ever/9812.Ag.briefs.html>).

Program graduates employed in Arboriculture were satisfied with their positions ( $\bar{M} = 4.60$ ). Graduates reported similar levels of satisfaction with the components of the programs they completed ( $\bar{M} = 3.99$ ) and college services ( $\bar{M} = 3.72$ ).

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*Floral designers should experience faster growth than the average for all occupations through the year 2006. (Occupational Outlook Handbook, 1998-99)*

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### **Ornamental Horticulture Operations and Management.**

Ornamental horticulture involves the selection, cultivation, and arrangement of flowers, greenery, and decorative containers to develop aesthetically pleasing displays for sale to the public. Cut flowers, cut greens, potted plants, foliage plants, bedding plants, and indoor

decoratives are used in ornamental horticulture. In addition to self-employment, opportunities exist through florists, supermarket floral shops, greenhouses, and other businesses which provide related materials and supplies.

Seven community colleges reported completers in Ornamental Horticulture programs with 27 respondents for a response rate of 87.1 percent. William Rainey Harper College contributed the largest group of graduates (N = 11). Ninety-two percent of the graduates were employed, pursuing further education, or both. More specifically, nearly a quarter of the graduates were both working and attending classes. Eight-five percent were working, and two-thirds of them were in full-time

positions. Two-thirds were working in the district where they went to college. Likewise, nearly two-thirds started their most recent position while enrolled in the ornamental horticulture program or after graduating.

*Four out of ten working graduates were employed outside the field of ornamental horticulture, which is relatively high in comparison to graduates from other programs. Those working in a related position were satisfied with their work ( $\bar{M} = 3.70$ ) compared to a more neutral satisfaction rating for those working outside the field ( $\bar{M} = 2.80$ ). Reasons for working in an unrelated position for these nine graduates included: three did not provide a reason, two could not find a related position, two found higher wages in another field, and two preferred to work outside the horticulture industry.*

Few Ornamental Horticulture graduates supplied earnings data. One-half ( $N = 7$ ) of the full-time workers who graduated from community colleges supplied wage data indicating an average salary of \$10.52/hour or about \$21,880 annually. According to a 1996 survey conducted by Floral Finance Incorporated, beginning floral designers had average earnings of \$5.85 an hour. Designers with one to three years of experience earned \$6.94, while designers with over three years of experience averaged \$8.17. Managers had average earnings of \$10.10 per hour in 1996. (*Occupational Outlook Handbook*, 1998-99) (<http://stats.bls.gov/oco/ocos090.htm>)

Ornamental Horticulture graduates were among the most satisfied groups with the programs they completed ( $\bar{M} = 4.56$ ). They rated each program component consistently high. College services were also highly rated by these graduates ( $\bar{M} = 4.52$ ). Student activities received the highest possible score from ornamental horticulture graduates ( $\bar{M} = 5.00$ ). College library and audio-visual services received very high ratings as well ( $\bar{M} = 4.88$ ).

### **Greenhouse Operations and Management.**

Nursery and greenhouse managers make decisions about the type and quantity of horticultural plants to be grown; select and purchase seed, fertilizers, and disease control chemicals; hire laborers and direct and coordinate their activities; manage record keeping, accounting, and marketing activities; and generally oversee operations. Greenhouse products include cut flowers, potted plants, bedding plants, and vegetables (*Occupational Outlook Handbook*, 1998-99). Combined wholesale and retail sales in the greenhouse and nursery industry is an estimated \$40 billion annually, while the number of producers exceeds 37,000 in the U.S. alone (<http://www.vtc.vsc.edu/catalog/degprogs.htm#>).

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*Through the year 2006, the need for nursery and greenhouse laborers and managers will grow due to the continued popularity of home gardening, as well as the need to cultivate and provide the vegetation used by landscaping services. (*Occupational Outlook Handbook*, 1998-99)*

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Greenhouse Operations is a very small program. Kishwaukee College and Triton College reported graduates, and seven of eight responded (87.5 percent). Five graduates were employed, one was exclusively enrolled in additional education, and one was both working and going to school. All working graduates were in positions related to greenhouse operations. Three were working full-time, and two were in part-time positions. Four of the five were employed in the community college district where they were educated.

Two full-time Greenhouse Operation workers reported wages of \$10.38 an hour or about \$21,590 annually. The University of Minnesota estimates that starting horticulturists and landscape designers have a salary potential of \$20,000 to \$25,000 per year (<http://www.crk.umn.edu/academics/Hort/hort2.htm>). Greenhouse Operation program graduates reported a relatively low job satisfaction level ( $\bar{M} = 3.40$ ) which reflects a neutral satisfied rating. The programs they completed were rated highly ( $\bar{M} = 4.76$ ) and so were college services ( $\bar{M} = 4.59$ ).

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*"Lawn service managers" is among the top 50 fastest growing occupations in the state. (Horizons, 2000)*

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### **Landscaping Operations and Management.**

Landscaping involves the science and art of designing, installing, and maintaining attractive combinations of plants, trees, flowers, and other greenery, as well as the production and sale of plants materials. In addition to plant materials,

construction materials and furnishings can be used to customize outdoor settings. Landscaping graduates may pursue career opportunities in areas such as ornamental production; horticulture and landscaping-related marketing, procurement, and quality control; landscaping supervision and management; and technical sales and services.

Six Illinois community colleges reported results from 27 Landscaping program graduates for a 75.0 percent response rate. Triton College and Kishwaukee College accounted for just over one-half of the respondents ( $N = 14$ ). Ninety-three percent of the Landscaping graduates were either employed, pursuing additional education, or both. Nine out of ten Landscaping Operations graduates were employed. Among working graduates, 87.5 percent were in full-time positions. Nearly 80 percent of those employed were working in the field of landscaping. Graduates working in the field reported high levels of satisfaction with their jobs ( $\bar{M} = 4.11$ ). For the five graduates working in another field, three did not provide a specific reason, one found a better paying job elsewhere, and one could not find a job in the field of preparation.

Eight out of ten graduates began their current employment either while enrolled in the program or after graduating. While Landscape program graduates remained in state, as a group they were more mobile than most program graduates. Just over one-half of the Landscaping graduates were employed outside the community college district where they completed their studies. Nearly all the rest worked in-district. Landscaping Operations completers reported high degree of satisfaction with the programs they completed ( $\bar{M} = 4.17$ ) and college services ( $\bar{M} = 4.30$ ).

Community college Landscaping Operations graduates working full-time earned \$13.59/hour or about \$28,267 annually. Though directly comparable information was difficult to obtain, information available from Purdue University (IN) estimates that starting salaries in the horticulture and landscaping field are between \$23,000 and \$31,000, depending on experience (<http://www.purdue.edu/UNS/html4ever/9812.Ag.briefs.html>). The University of Minnesota estimates that starting horticulturists and landscape designers have a salary potential of \$20,000 to \$25,000 per year (<http://www.crk.umn.edu/academics/Hort/hort2.htm>).

**Turf Management.** Turf Manager graduates have skills to cultivate, manage, and maintain grassed areas for recreational and/or ornamental purposes. Graduates are knowledgeable about pest and disease control, irrigation, and the operation and maintenance of turfgrass equipment. Graduates often seek employment at golf courses and are qualified for technician positions such as course greenskeeper. With experience, graduates have the potential to move into management positions such as greens supervisor, course superintendent, or assistant superintendent. Turf Managers also work on residential and commercial lawns, athletic fields, parks, recreation areas, sod farms, and other areas where turfgrasses are grown.

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*In Illinois, increasing construction of commercial and recreational areas should stimulate faster than average demand for groundskeepers and related occupations through 2006. Some positions are seasonal work. Opportunities for qualified people should be excellent. (Horizons, 2000)*

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Turf Management is a small specialty program at community colleges. All ten Turf Management graduates responded from the programs offered by Kishwaukee College, College of DuPage and Joliet Junior College. Kishwaukee College's program was responsible for eight out of ten graduates statewide. Turf Management programs include extensive lab hours and often have an internship component. All ten graduates were employed in full-time positions in the turf management industry. *Job satisfaction among Turf Management graduates was the lowest ( $\underline{M} = 3.33$ ) among all the programs for completers working in their chosen field.*

Turf Management graduates were all employed in Illinois with two-thirds working outside the community college district where they went to school. Just over one-half of the Turf Management graduates begin new positions while enrolled or after program completion. A relatively high 44.0 percent were continuing in the same position they had prior to program entrance. No Turf Management graduates were pursuing additional education

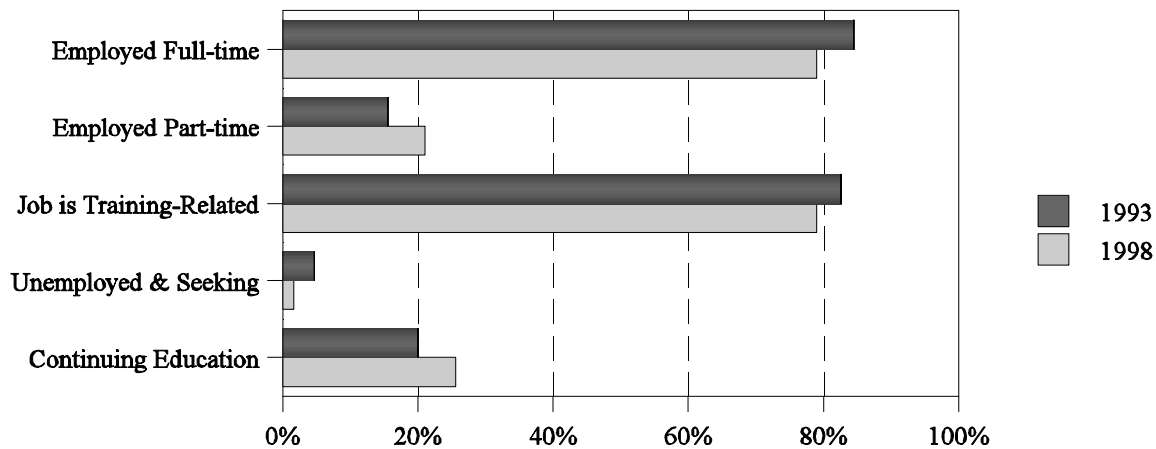
Community college Turf Management graduates employed in full-time positions earned \$11.86/hour or \$24,669 on an annual basis. According to Purdue University, starting salaries vary widely depending on the area of the country, but range from \$23,000 to \$26,000 a year plus benefits for graduates with a bachelors degree. Hence, these community college graduates are earning competitive wages (<http://www.agry.purdue.edu/turf/academ/bachelor.htm>).

Overall, graduates were satisfied with the programs they completed ( $\underline{M} = 4.08$ ). Job preparation aspects of the program ( $\underline{M} = 3.63$ ) and labor market information ( $\underline{M} = 3.78$ ) were perceived as areas for improvement, but ratings were still in the satisfied range. Turf Management graduates were largely satisfied with the support services the colleges provided ( $\underline{M} = 4.21$ ). The only service component rated relatively low was transfer planning ( $\underline{M} = 3.00$ ).

**Overall Comparison of Combined Horticulture Results With Those from Five Years Ago.** (Four-Digit CIP) Comparing current Horticulture Services and Operations and Management results with those from five years ago can only be done at the broadest program level. The last report was less detailed than the current one (four-digit versus six-digit CIP program identifier). Results from the Combined Horticulture Services and Operations and Management (CIP 0106) area show comparable levels of employment between the groups (82.0 percent for 1998 and 83.5 percent for



1993). Recent graduates exhibited higher part-time employment, a slightly smaller percentage of training related placements, lower unemployment, and greater involvement in continuing education.



**Figure 7.** Combined Horticulture Services and Operations Management: FY 1993 & FY 1998

### **Wildlife and Wildlands Management.**

Wildlife Management graduates are knowledgeable about the principles and practices used in the production and improvement of wildlife resources for aesthetic, ecological, and recreational uses of public and private lands. Employment is typically found among federal and state conservation-related agencies in positions such as fish and wildlife technicians, park rangers, or in private consulting firms. Fish and wildlife technicians are responsible for breeding, raising, and protecting wildlife including fish, birds, deer, and other species. They often record data on the number and distribution of fish and wildlife and initiate habitat improvement programs.

Park rangers protect, maintain, and oversee the appropriate use of parks and historical sites. They enforce regulations, register visitors, provide information, and patrol the area to prevent fires and protect natural surroundings. Park rangers also may plan conservation programs and recreational activities.

Wildlife and Wildlands Management is a small specialty program. Eight Wildlife Management graduate respondents from Southeastern Illinois College (N = 7) and Shawnee Community College (N = 1), both located in southern Illinois, resulted in a response rate of 57.1 percent. Seven out of eight Wildlife program graduates were employed in full-time positions. Six of the seven working graduates were employed in the field and indicated that they were satisfied with their positions (M = 4.00). One graduate was unemployed and looking for a job. Two graduates were both working and

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*The outlook for graduates is mixed. Illinois employment in related occupations is small. In Illinois and nationally, park ranger employment shows little or no employment growth and low turnover. Nationally, employment opportunities for fish and wildlife technicians are expected to be good through 2006. Nationally, fish farming may provide for limited growth. Individuals with formal education or training in fish and wildlife sciences or related fields should have the best opportunities. (Horizons, 2000)*

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participating in further Wildlife and Wildlands-related classes. All graduates obtained their current jobs either while enrolled (N = 2) or after graduation (N = 5).

Community college Wildlife Management graduates working full-time earned \$10.24/hour or about \$21,300 annually. Entry salaries within the State of Illinois for fish and wildlife technicians in 1996 were about \$20,690/year. The maximum is around \$33,220/year. In 1996, park rangers employed by the Illinois Department of Conservation earned an entry-level salary of around \$23,600/year and a maximum salary of about \$33,220/year. Beginning rangers in the National Park Service usually earn an entry-level salary of about \$17,000/year. More experienced or educated rangers may enter the Park Service at a starting salary of \$25,000/year. (*Horizons*, 2000) Community college Wildlife Management graduates earned competitive wages.

Overall, Wildlife Management graduates were consistently satisfied with the programs they completed ( $\bar{M} = 4.54$ ). Ratings were among the highest for graduates from any program who responded to the current survey. Approval of community college services was also very high for wildlife management completers ( $\bar{M} = 4.75$ ). College financial aid and tutoring services received perfect ratings ( $\bar{M} = 5.00$ ).

**General Retailing Operations.** Graduates develop marketing skills to apply in retail establishments. Individuals involved in retailing identify desirable product attributes and product benefits to sell merchandise directly to customers (e.g., clothes, home furnishings, personal care items, durable goods, etc.).

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*In Illinois, "retail salespersons" is one of 50 occupations expected to provide the most job openings each year. Prospects are best for people who are knowledgeable about specific products sold in retail and wholesale outlets and for those with some sales experience. (Horizons, 2000)*

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Five colleges had eleven General Retailing Operations graduates respond to the occupational follow-up survey for a response rate of 42.3 percent. Wabash Valley College (N = 5) and Lake Land College (N = 3) combined for almost three-quarters of all replies. The ten graduates who supplied employment information were all working full-time. One General Retailing graduate was both working and going to school in a program related to General Retailing Operations. Three-quarters of those providing information about relatedness of employment were working in retail and they were satisfied with their positions ( $\bar{M} = 4.00$ ). The two who were working outside the retail industry either could not find a related position or went to another field for better pay. All working graduates were employed in Illinois with in-district employment accounting for three-quarters of the employment. General Retailing graduates were pretty evenly distributed in terms of when they earned their current jobs: prior to entry (N = 3), while enrolled (N = 2), and after program completion (N = 3).

Community college General Retailing Operations completers in full-time positions earned \$9.61 an hour or the equivalent of about \$19,990 annually. Salaries in retail sales vary substantially depending upon experience; level of responsibility; and type, size, and location of the retail operation. Most receive an hourly rate and some also receive a commission on sales. Starting wage for part-time retail sales positions is usually minimum wage (\$5.15/hour). Nationally, average salaries for retail salespeople in 1997 ranged from about \$7.10-\$11.85/hour. In Illinois, retail salespeople earned a starting wage of \$6.40/hour in 1996. Supervisors or managers of sales workers in the retail trade

industry who usually worked full time had median annual earnings of \$24,400 in 1996. The middle 50 percent of retail supervisors earned between \$16,900 and \$34,400. (*Horizons*, 2000). Salaries for community college General Retailing Operations graduates point toward positions with more supervisory or managerial responsibilities.

General Retailing Operations graduates were highly and equally satisfied with course-related components ( $\underline{M} = 4.50$ ) and college services ( $\underline{M} = 4.54$ ).

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*Generally, employment of sales representatives, is expected to grow faster than the average for all occupations through the year 2006. Growth will vary based on patterns in the industries in which sales activities are concentrated. (Occupational Outlook Handbook, 1998-99)*

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### **General Selling Skills and Sales Operations.**

Graduates from General Sales programs may work in a sales capacity in a variety of industries including financial services, wholesale trade, specialty equipment, manufacturing, etc. Traveling to and visiting with prospective buyers and current clients is a major activity. Chances for success in sales improve based on several factors, including

a strong customer service orientation, a product line with some unique features, competitively priced merchandise, and a territory with a desirable profile.

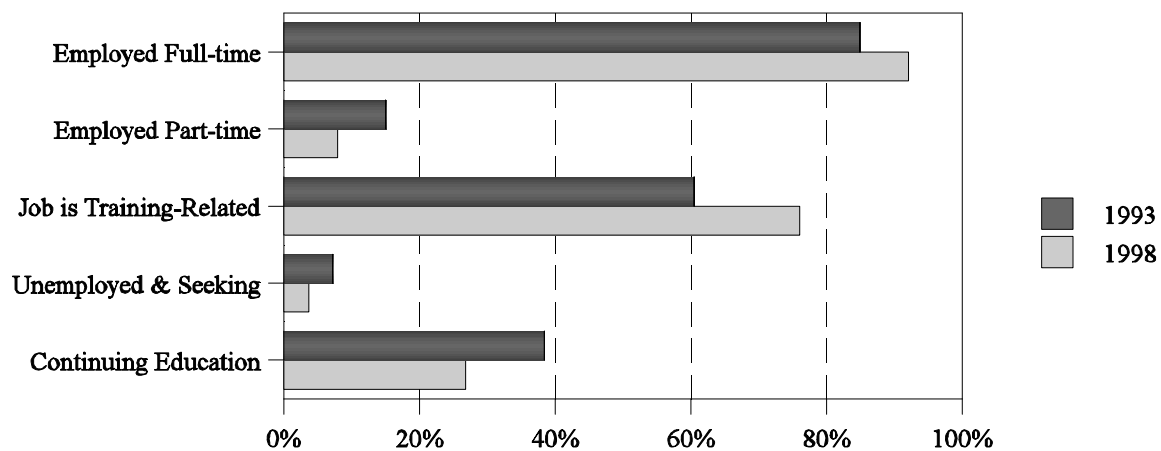
Nineteen community colleges furnished information from 82 General Sales graduates for a response rate of 59.9 percent. The College of DuPage (N = 13), Chicago's Wilbur Wright College (N = 12), and the College of Lake County (N = 11) contributed the largest number of responses. Overall, 92 percent of the Selling/Sales graduates were employed. Likewise, 92.1 percent of the working graduates were employed in full-time jobs. Three graduates were unemployed, and three others were not actively seeking employment.

Just over three-quarters of the graduates were working in sales-related positions. Reasons cited for working outside the area where graduates were trained were diverse. The two major reasons cited by Selling/Sales graduates were finding higher wages in another field (N = 5) and due to other reasons not among those listed on the survey (N = 7). A few took non-sales jobs based on personal preferences: preferred another field (N = 1), preferred not to relocate (N = 1), and preferred another field for better work hours (N = 1). One could not find work in the field and another considered their current position a temporary job.

Looking at participation in both education and employment among Selling/Sales graduates shows that 97.6 percent were either employed, attending college, or both. Seventeen of the eighteen graduates who participated in both work and school were pursuing coursework related to sales. Almost four in ten graduates took additional coursework at some time since finishing their community college program. Selling/Sales graduates were using the program both to build skills for existing jobs and for career enhancement. At the time of the survey, just over one-third of the Selling/Sales graduates had the same positions as when they entered the program, nearly one-quarter located their position while enrolled, and 42.9 percent found their current jobs after graduating. Nearly three-quarters of the graduates were employed in the community college district where they attended classes.

Selling/Sales graduates from community colleges working full-time earned \$14.19/hour or the equivalent of \$29,515 annually. Earnings vary widely based on a variety of factors, including industry of affiliation, products or services sold, region/territory covered, etc. According to the *1996 Occupational Wage Survey*, sales representatives in Illinois average from \$24,540 to \$42,000 per year based on location in the state. (*Horizons*, 2000) According to Dartnell Corporation's *1996 Sales Compensation Survey*, entry-level sales representatives received \$36,000 in average total cash compensation (*Occupational Outlook Handbook*, 1998-99).

A comparison of current General Selling Skills and Sales Operations results with those from five years earlier shows higher employment levels for current graduates (92.7 percent for 1998 and 87.3 percent for 1993). Recent graduates had higher levels of full-time employment, a greater percentage of training-related placements, lower unemployment, and lower involvement in continuing education.



**Figure 8.** General Selling Skills and Sales Operations: FY 1993 & FY 1998

**General Distribution Operations.** Graduates develop skills in marketing services in wholesale establishments. They may work in a variety of occupations, including wholesale sales representatives or, on the opposite end of the transaction, as purchasers or buyers. Wholesale sales representatives market products and work to interest wholesale and retail buyers and purchasing agents in their merchandise and address current client concerns. Three of every four wholesale sales representatives worked in wholesale trade mostly for distributors of machinery and equipment, groceries and related products, and motor vehicles and parts. Purchasers (for in-home use) and buyers (for resale) seek to obtain the highest quality merchandise at the lowest possible price for their employers. They identify quality products or services, choose suppliers, negotiate prices, and award contracts. About one-half of all purchasers and buyers worked in wholesale and retail trade establishments such as grocery or department stores, and another

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*Overall, employment of manufacturers' and wholesale sales representatives is expected to grow about as fast as the average for all occupations through the year 2006. Employment of purchasers and buyers is expected to increase more slowly than average over the same period. Most job openings will be for replacement workers. (Occupational Outlook Handbook, 1998-99)*

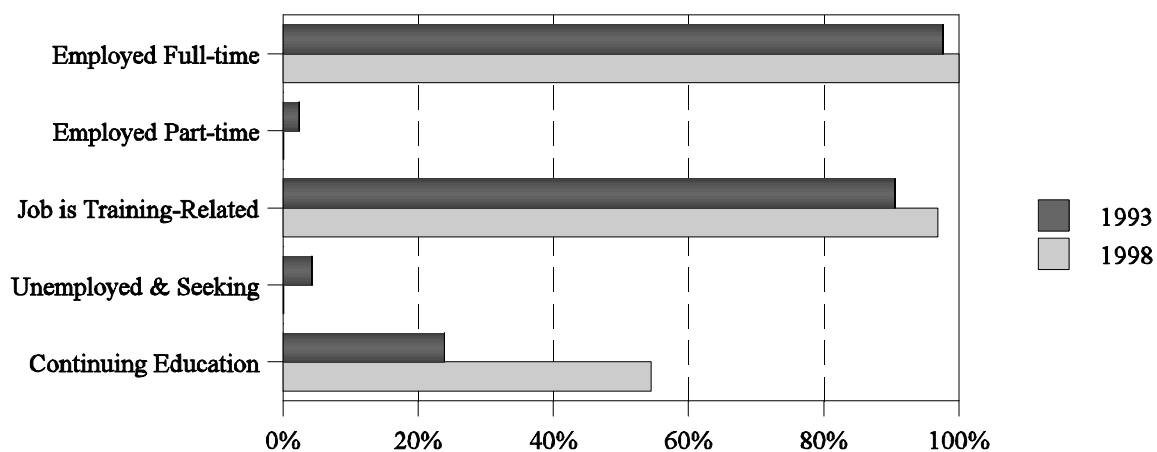
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one-fourth worked in manufacturing. The remainder worked mostly in service establishments or different levels of government. (*Occupational Outlook Handbook*, 1998-99).

Thirty-four General Distribution Operation graduates from five colleges returned completed surveys for a response rate of 64.2 percent. William Rainey Harper College and the College of DuPage together accounted for nine out of ten graduate respondents. All graduates were either employed, in school, or both. Ninety-seven percent were employed, and all those working were in full-time jobs. All but one were working in a related field (96.9 percent). Those working in the field were satisfied with their jobs ( $\bar{M} = 4.26$ ). One graduate was not actively seeking employment. One-half the graduates were taking additional coursework mostly related to wholesaling. Most General Distribution Operation graduates obtained their current jobs either prior to program entrance (43.8 percent) or while enrolled (37.5 percent). Overall, General Distribution Operation graduates rated the program components ( $\bar{M} = 4.45$ ) and college services ( $\bar{M} = 4.15$ ) highly.

Earnings for full-time workers among community college General Distribution Operation graduates who reported earnings data were substantial at \$19.59 an hour or nearly \$40,750 annually. Median annual earnings of purchasers and buyers was \$33,200 in 1996. The middle 50 percent earned between \$23,300 and \$45,900. Median annual earnings of full-time manufacturers' and wholesale sales representatives were about \$36,100 in 1996. The middle 50 percent earned between \$24,900 and \$51,900 per year. (*Occupational Outlook Handbook*, 1998-99). Earnings for community college General Distribution Operation graduates were very competitive.

A comparison of current General Distribution Operations results with those from five years ago shows higher employment levels for current graduates (97.1 percent for 1998 and 91.3 percent for 1993). Results were positive for both groups of graduates. All current working graduates were in full-time positions, and the unemployment rate for current graduates was zero. Recent graduates had higher levels of training-related placements and greater involvement in continuing education.



**Figure 9.** General Distributions Operation: FY 1993 & FY 1998

**Travel Services Marketing Operations.** Graduates furnish travel information and act as agents in arranging travel and tours. Travel agents, tour guides, meeting planners, airline reservation agents, rental car agents, and travel counselors are some of the related occupations. Their work involves organizing or scheduling business, educational, or recreational travel or activities.

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*Employment in the travel industry is expected to grow faster than the average for all occupations through the year 2006. Most job openings will arise based on the need for replacement workers. Spending on travel is expected to increase significantly over the next decade. (Occupational Outlook Handbook, 1998-99) Structural changes in how these services are paid for and increases in individuals making travel arrangements directly via the internet may effect future prospects.*

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Seven colleges provided information from 87 Travel Services Marketing Operations graduates for a response rate of 50.6 percent. The College of DuPage (N = 54) accounted for nearly two-thirds of the responses. Ninety-one percent of the Travel Services graduates were either employed, enrolled in additional education or both (N = 18). Eighty-three percent (N = 72) were employed. Among working graduates, 70.8 percent were employed in full-time positions. Four graduates were unemployed, and eleven were not seeking employment. Nearly all graduates were employed in Illinois with three-quarters working in the college district where they were trained. One in four graduates was enrolled in additional education with just over half of their studies related to Travel Services.

*Slightly less than one-half of the working graduates were employed in a position related to Travel Services. These results show very low employment in a related field among Travel Services graduates. Reasons for working outside the Travel Services industry included: temporary employment (N = 9), preferred to work in another field (N = 6), found better pay in another field (N = 5), could not find a job in the field (N = 5), worked previously in the field but changed (N = 5), other (N = 4), took job to get preferred work hours (N = 3), and preferred not to relocate (N = 1). Additional investigation about why such a substantial portion of the Travel Services graduates are choosing to work outside the field seems warranted.*

Survey results indicate that overall Travel Services graduates were very satisfied with the programs they completed ( $\bar{M}$  = 4.43) and college services ( $\bar{M}$  = 4.28). Career planning ( $\bar{M}$  = 4.15), labor market information ( $\bar{M}$  = 4.23), and job preparation ( $\bar{M}$  = 4.55) and were all rated highly among Travel Services graduates. Graduates working in travel industry-related positions were slightly more satisfied with their work ( $\bar{M}$  = 4.36) than those working in other fields ( $\bar{M}$  = 4.06).

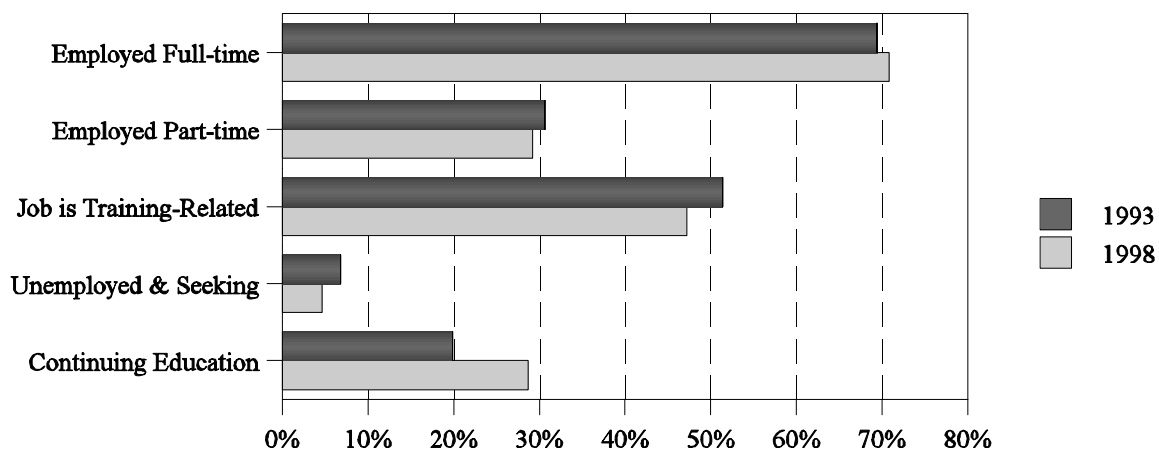
Travel Service program graduates working full-time earned \$11.86 per hour or about \$24,670 annually. According to a Louis Harris survey conducted for *Travel Weekly*, 1996 median annual earnings of travel agents on straight salary with less than one year experience were \$16,400; from one to three years, \$20,400; from three to five years, \$22,300; from five to ten years, \$26,300; and more than ten years, \$32,600. Agencies focusing on corporate sales tend to pay higher salaries.

According to the *Occupational Outlook Handbook* (1998-99), commissions for domestic travel arrangements, cruises, hotels, sightseeing tours, and car rentals are about 7 to 10 percent of the total sale; for international travel, about 10 percent. Some recent changes in the commissions paid to travel agents by the airline industry may diminish the profitability of related travel service marketing

or cause them to charge for their services. Recently, the industry-wide airline commission rate paid to travel agents was about 8 percent of the applicable base fare with a "capped" maximum of \$50 per ticket since 1995. In October 1999, one of the major airlines announced a commission reduction to 5 percent of the applicable base fare and within days most other major carriers followed their lead. Commissions are often split between the travel agent and the agency. Over 84 percent of travel agencies now charge their clients 'service fees' between \$5 and \$200 according to a recent American Society of Travel Agents survey of its members (<http://skitrips.net/faqs/profit.html>).

As internet use continues to grow, there is a likelihood that larger numbers of people will make their own travel arrangements directly via the internet. The extent to which individuals choose to utilize this option will impact the travel services industry.

Comparing current Travel Services Marketing Operations results with those from five years ago show comparable levels of employment between the groups (82.8 percent for 1998 and 83.1 percent for 1993) and similar levels of full-time employment. Recent graduates had a lower percentage of training-related placements, lower unemployment, and greater involvement in continuing education.



**Figure 10.** Travel Services Marketing Operations: FY 1993 & FY 1998

### **Environmental and Pollution Technology.**

Graduates develop knowledge and skills to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using indoor and outdoor environmental pollution control systems and in disposing of hazardous materials. Graduates are knowledgeable about environmental safety, related governmental regulations and permits, bio-hazards, testing and sampling procedures, laboratory techniques, instrumentation calibration, hazardous waste disposal procedures and systems, safety and protection procedures,

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*Employment of science technicians is expected to increase about as fast as the average for all occupations through the year 2006. Growth should also be fueled by demand for technicians to help regulate waste products, collect air, water, and soil samples to measure levels of pollutants, monitor compliance with environmental regulations, and clean up contaminated sites. Environmental inspector positions will grow slower than average. Occupational Outlook Handbook, 1998-99)*

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equipment maintenance, and report preparation. They may work as environmental technicians, environmental health inspectors, or related occupations.

Environmental technicians may perform laboratory and field tests to monitor environmental resources and determine the contaminants and sources of pollution. They may collect samples for testing or be involved in controlling or correcting pollution sources. They may be responsible for waste management operations, control and management of hazardous materials inventory, or general activities involving regulatory compliance. There is a growing emphasis on pollution prevention activities.

Environmental health inspectors work primarily for state and local governments to ensure that food, water, and air meet government standards. They check for the cleanliness and safety of the handling, processing, and serving of food for compliance with sanitation rules and regulations and oversee the treatment and disposal of sewage, refuse, and garbage. In addition, inspectors may visit pollution sources and test for pollutants by collecting air, water, or waste samples for analysis. They try to determine the nature and cause of pollution and initiate action to stop it.

Environmental and Pollution Technology Operations is a small specialty program with nine responding graduates reported by Black Hawk College and Chicago's Wilbur Wright College (response rate 52.9 percent). Seven graduates were employed in full-time positions, and the two remaining graduates were unemployed. Three-quarters of the graduates were working in the district where they received their training. Three of seven graduates had their current positions before they entered the program. One graduate was both working and pursuing further education. At the time of the survey, two were enrolled in further education related to Environmental Pollution and Technology. One was employed in an industry-related position.

*Only two of the seven graduates who reported the relatedness of their job to their studies were working in the field of Environmental and Pollution Technology Operations.* Reasons provided by Environmental and Pollution Technology Operations graduates working outside the field included: found a better paying jobs in another field (N = 2), preferred to work in another field (N = 1), and two gave reasons other than those listed on the survey. Graduates working in related positions ( $\bar{M} = 4.50$ ) were more satisfied with their jobs than those working in other fields ( $\bar{M} = 3.60$ ).

Environmental and Pollution Technology Operations graduates reported high levels of satisfaction with the programs they completed ( $\bar{M} = 4.32$ ). Job preparation was rated lowest, but still in the satisfied range ( $\bar{M} = 3.78$ ). Graduates from Environmental and Pollution Technology Operations programs were especially positive about college services ( $\bar{M} = 4.49$ ).

Illinois community college Environmental and Pollution Technology Operations graduates employed in full-time positions earned \$15.22 an hour or about \$31,658 annually. Median annual earnings of science technicians were about \$27,000 in 1996; the middle 50 percent earned between \$19,800 and \$37,100. Median annual earnings were about \$31,100 for chemical technicians and about \$25,200 for biological technicians in 1996. Environmental protection assistants earn approximately \$29,090 (*Occupational Outlook Handbook*, 1998-99). Environmental and Pollution Technology Operations graduates from community colleges are earning competitive wages.



**Exercise Sciences/Physiology and Movement**

**Studies.** Exercise Sciences/Physiology programs involve the scientific study of anatomy, physiology, biochemistry, and biophysics of human movement, and applications to exercise and therapeutic rehabilitation. Graduates gain knowledge of biomechanics, motor behavior, motor development and coordination, motor neurophysiology, rehabilitative therapies, the development of diagnostic and rehabilitative methods and equipment, and related analytical methods and procedures.

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*Employment in positions such as occupational therapy assistants and aides and physical therapist assistants and aides, recreational leaders and workers are expected to grow faster than average through the year 2006. (Occupational Outlook Handbook, 1998-99.)*

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William Rainey Harper College was the only community college with Exercise Sciences/Physiology and Movement Studies graduates. Nine out of ten graduates responded to the survey. All graduates were employed and all were working in related positions. One was both working and attending classes in a related area. All began their current positions either during enrollment (33.3 percent) or after program completion (66.7 percent). Exercise Sciences/Physiology program graduates working in the field were highly satisfied with their jobs ( $\bar{M} = 4.89$ ). They were satisfied with the program they completed ( $\bar{M} = 3.93$ ) and rated equipment and facilities the lowest of all the program components ( $\bar{M} = 3.75$ ). Exercise Sciences/Physiology and Movement Studies graduates were highly satisfied with college services ( $\bar{M} = 4.46$ ) and gave perfect ratings ( $\bar{M} = 5.00/5.00$ ) to financial aid, career planning, counseling, and student activities.

There were only two Exercise Sciences/Physiology and Movement Studies graduates in full-time positions who reported wage data and they earned \$20.50 an hour or the equivalent of \$42,640 annually. The two part-time workers who were employed in the field reported earnings of \$15.00 an hour. The college where this program operates is in a relatively affluent part of the state. Locating directly comparable salaries was problematic. Available information about starting salaries for physical therapist assistants indicates that they averaged about \$24,000 a year in 1996 and that experienced assistants working in private practice earned an average of about \$30,000 in the same year. In 1996, median annual earnings of full-time salaried health aides, including physical therapist aides, were \$16,000. The middle 50 percent earned between \$13,000 and \$21,000. According to a membership survey of the American Occupational Therapy Association, mean annual income for new full-time occupational therapy assistants was about \$27,442 in 1995. Based on limited information, occupational therapy aides usually start between \$6.50 and \$7.50 an hour (*Occupational Outlook Handbook*, 1998-99).

**Construction Trades (Integrated).** Graduates from an integrated program in construction trades have developed skills in several core areas, including carpentry; plumbing, masonry, basic electrical work; interior and exterior surface preparation; and painting, staining, and covering. Since carpenters are the largest group of building trades workers (996,000 jobs nationwide in 1996) and those skills are central to the program, carpenters will be used as a reference point for integrated construction graduates.

While job opportunities are generally plentiful, the increasing use of prefabricated components and improvements in technology (stronger adhesives, lightweight cordless pneumatic tools, etc.) will

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*Employment in construction trades varies by region and economic climate. Carpentry is the largest construction trade. Job opportunities for carpenters are expected to be plentiful through the year 2006, due primarily to extensive replacement needs in this high turnover occupation. Employment is expected to increase more slowly than average for all occupations through the year 2006. Occupational Outlook Handbook, 1998-99*

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impact the number of construction workers needed. Building activity depends on numerous factors including interest rate fluctuations which vary with the state of the economy. Additionally, job opportunities for construction workers tend to vary by geographic area mirroring the movement of people and businesses. Periods of unemployment for workers in this field are not uncommon.

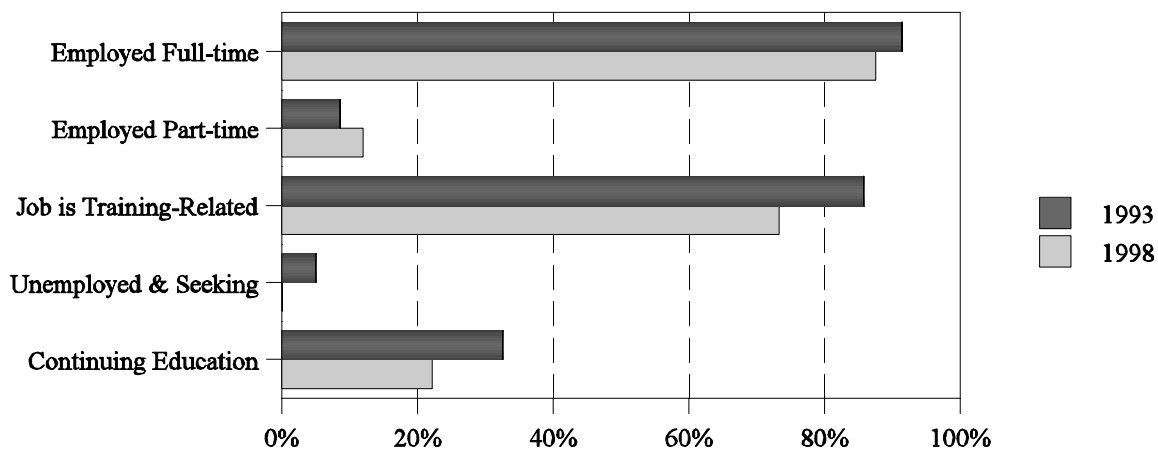
Five colleges had Integrated Construction Trades graduates who responded to the survey.

Eighteen graduates responded for a response rate of 41.9 percent. Parkland College, Belleville Area College, and South Suburban College each contributed five responses. Ninety percent of graduates were either working, attending courses, or both (N = 4). Among working Integrated Construction Trades graduates, almost nine out of ten were employed full-time (N = 14). Seven out of ten located their current position either while enrolled or after graduating. Eighty-five percent were working in Illinois. Three-quarters of working graduates were employed in a related field. The four graduates working outside of construction gave the following reasons: found better pay in another job (N = 2), in a temporary job (N = 1), and other (N = 1).

Full-time wages for community college Integrated Construction Trades graduates were \$14.15 per hour or \$566 a week or approximately \$29,432 a year – assuming continuous employment. Median weekly earnings of carpenters, excluding the self-employed, were \$476 in 1996. The middle 50 percent earned between \$345 and \$660 per week. Wages earned by community college graduates were competitive.

Job satisfaction was high among the Integrated Construction Trades graduates working in the field ( $\underline{M}$  = 4.27). *Integrated Construction Trades graduate satisfaction with the programs they completed* ( $\underline{M}$  = 3.58) *and college services* ( $\underline{M}$  = 3.39) *were the lowest in the study. They rated program components and services below average on a consistent basis.* Equipment, facilities, and materials were rated very low ( $\underline{M}$  = 2.89) as was the ratings for labor market information ( $\underline{M}$  = 3.33). Student activities ( $\underline{M}$  = 2.57), counseling ( $\underline{M}$  = 2.92), tutoring ( $\underline{M}$  = 3.00), advising ( $\underline{M}$  = 3.33), and career planning ( $\underline{M}$  = 3.33) were all rated low.

Comparing current Construction Trades (Integrated) results with those from five years ago show similar levels of employment between the groups (88.9 percent for 1998 and 87.5 percent for 1993) and slightly lower levels of full-time employment. No current graduates were unemployed. Recent graduates had a lower percentage of training-related placements and lower involvement in continuing education.



**Figure 11.** Construction Trades (Integrated): FY 1993 & FY 1998

**Stationary Energy Sources Installer and Operator.** Programs prepares individuals to apply technical knowledge and skills to install, repair, operate, and maintain large power sources for such purposes as generating electricity, pumping, and heating. Graduates may work in a variety of positions, including commercial and industrial electronic equipment repairers and electric power generating plant operators, distributors, and dispatchers.

Triton College and Belleville Area College were the only colleges with Stationary Energy Sources Installer and Operator graduates. Ten graduates returned usable surveys for a response rate of 90.9 percent.

All the Stationary Energy Sources Installer and Operator graduates were employed in related positions. One was both working and taking classes in a related program. Nine out of ten were full-time workers. All were employed in Illinois with one-half working in the district where they were trained. Stationary Energy Sources Installer and Operator graduates were satisfied with their positions ( $M = 4.30$ ).

Illinois community college Stationary Energy Sources Installer and Operator graduates earned \$19.96 an hour or \$798 per week or approximately \$41,517 a year. Earnings vary widely by occupation and the type of equipment repaired or operated. According to a survey of workplaces in 160 metropolitan areas, beginning maintenance electronics technicians had median earnings of \$11.50 an hour in 1995, with the middle half earning between \$10.50 and \$13.25 an hour. Median weekly earnings for communications and industrial equipment Electronic Repairers were \$602/week. According to the limited information available, median weekly earnings for conventional power plant operators were about \$869 in 1996. According to information from union surveys, wages for fossil fuel power plant

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*Overall employment of commercial and industrial electronic equipment repairers is expected to increase about as fast as the average the average for all occupations through the year 2006. Employment in non-government industries is expected to grow faster than the average for all occupations. Little increase in employment of electric power generating plant operators, distributors, and dispatchers is expected through the year 2006 as the industry restructures in response to deregulation and increasing competition.*

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*Occupational Outlook Handbook, 1998-99*

operators ranged from \$498 to \$1,100 weekly, averaging \$837 in 1995 (*Occupational Outlook Handbook*, 1998-99). Stationary Energy Sources Installer and Operator graduates from community colleges are earning substantial wages.

Stationary Energy Sources Installer and Operator graduates were generally satisfied with the programs they completed ( $\bar{M} = 4.15$ ), but indicated a desire for better labor market information ( $\bar{M} = 3.22$ ). Their levels of satisfaction was higher for college services ( $\bar{M} = 4.41$ ). Stationary Energy Sources Installer and Operator graduates awarded perfect ratings to half of the college services ( $\bar{M} = 5.00$  out of 5.00): financial aid, advising, career planning, and tutoring.

### Conclusions and Policy Implications

The Illinois economy has been thriving both at the time of the current study and as this report is being produced. Illinois has been at a level of worker employment at “historically unprecedented levels” with “unemployment rates in Illinois below the national average for 44 out of the past 48 months” (Putnam, September 22, 1999). During spring 1999 when the survey was conducted unemployment levels in Illinois were at or near their lowest levels in 24 years (<http://lmi.ides.state.il.us/summjobs.htm> 5/20/99 IDES Press Release). The economic climate in Illinois is very favorable and community colleges are being relied upon to help meet the need for qualified workers. Both community college graduates and others who take selected courses at community colleges are making contributions to meeting these demands.

As a part of a multifaceted systemwide accountability initiative, Illinois community colleges conduct an annual follow-up survey of graduates in designated occupational programs. Graduates furnish valuable information regarding their college and employment experiences. The graduate perspectives offer community colleges a timely data source to assist in the development of program improvement initiatives. The broad field of Nursing accounted for four out of five graduate respondents (80.3 percent) in the current study. Results are based on responses to follow-up surveys that were mailed to graduates in selected programs in spring 1999, approximately six to nine months after graduation. State-level results show:

- < 93.8 percent were employed or pursuing additional education or both. (Table B-1.)
- < 90.0 percent of the occupational completers were employed. (Table B-2.)

Among working graduates,

- < 82.0 percent held full-time status in their current jobs. (Table B-2.)
- < 87.2 percent were employed in positions related to the field in which they studied at the community college. (Table B-5).
- < 82.7 percent obtained their current positions while enrolled or after graduating. (Table B-7.)
- < 92.3 percent were employed in Illinois. Of those, seven out of ten remained in the district where they received their training. (Table B-8.)
- < The average salary was \$12.62 per hour, nearly two and one-half times the minimum wage (\$5.15 per hour). (Table B-9.)

- < Graduates employed in full-time positions earned the equivalent of about \$26,800 annually.
- < The average rate of unemployment was 3.3 percent. (Table B-2). The statewide unemployment rate was 4.0 percent in March 1999 (<http://lmi.ides.state.il.us/laus99.htm> 9/29/99).
- < Nearly one-quarter of the respondents were pursuing additional education. Four out of five of those enrolled in further study were taking coursework in a related field (Table B-4).
- < Graduates employed in positions related to their community college program were satisfied with their current positions ( $\bar{M}$  = 4.23 on a five-point scale, with 5 being very satisfied and 0 being very dissatisfied). Including unrelated positions, job satisfaction averaged 4.19/5.00. (Table B-10.)
- < Overall, graduates expressed satisfaction ( $\bar{M}$  = 4.26/5.00) with components of their program (course content, lecture/lab experiences, equipment, facilities and materials, job preparation, preparation for further education, and labor market employment information). (Table B-11.)
- < Graduates were also satisfied with college services, such as financial aid, academic advising, career planning, transfer planning, counseling, tutoring, library/audio-visual, student activities) awarding an average rating of 4.20/5.00. (Table B-12.)

Graduates from similar program areas were surveyed five years ago. High demand nursing field graduates were predominant among the programs under study. An overall comparison of follow-up survey results for 1998 and 1993 graduates indicate consistent high performance on two key outcomes:

- < Combined levels of employment, enrolling in additional courses, or both were consistently high at nearly 94 percent for both groups of completers.
- < Employment levels were high at 90 percent for both groups.

Current graduates showed some advances in a half dozen other areas. Results were positive in both 1998 and 1993.

- < The statewide 1998 follow-up response rate (57.2 percent) was substantially higher than the 1993 rate (45.8 percent). College efforts to capture a broader cross-section of respondents and increase response rates are recognized.
- < Two-thirds of the current graduates were working in the community college district in which they received their training, thereby contributing to the local economy. Results were up nearly 4 percent from 1993.
- < In keeping with a growing economy, almost one out of five working graduates obtained their current employment while still enrolled in the program. Opportunities were arising before graduation. The rate was up 3.3 percent from 1993.
- < Generally, more recent graduates exhibited slightly higher satisfaction ratings. Both groups awarded high satisfaction ratings. Graduates reported high levels of satisfaction with major program components ( $\bar{M}$  = 4.26 for 1998 completers and  $\bar{M}$  = 4.10 for 1993 graduates) and college services ( $\bar{M}$  = 4.20 for 1998 and  $\bar{M}$  = 4.00 for 1993 completers). Likewise, workers in both studies reported high levels of satisfaction with their jobs ( $\bar{M}$  = 4.19 for 1998 and  $\bar{M}$  = 4.08 for 1993).
- < Nearly one-quarter of current survey respondents were pursuing additional education. Up almost 2 percent from 1993.

- < In another positive sign which reflects the thriving economy, the percentage of recent graduates who were unemployed and seeking work is lower currently at 3.3 percent versus a 4.1 percent unemployment rate reported five years earlier.
- < The average hourly wage of \$12.62 increased \$1.14 from five years ago for all workers. Minimum wage increased \$0.90 per hour over the same period of time.
- < Employment in full-time positions showed a small increase at 82.0 percent for 1998 and 80.9 percent for 1993.

A few of the study results warrant further consideration or examination:

Although substantial, the proportion (87.2 percent) of 1998 graduates employed in an area related to their program of preparation was slightly less (1.3 percent) than reported by the 1993 graduates. Several programs reviewed in this statewide study had more than one-quarter of the total employed graduates working in a field that was not related to their program of study. *Those programs which also have at least ten graduates in the statewide study should be examined through college program review processes to determine if program improvement initiatives are necessary: Travel Services Marketing Operations, Ornamental Horticulture Operations and Management, Nurse Assistant/Aide, Construction Trades (Integrated), and Therapeutic Recreational Assisting. (Table B-5)*

Current results indicate that colleges have responded in a positive manner to Illinois Community College Board requests to put further effort and resources into the collection of the annual occupational follow-up data. The current statewide response rate of 57.2 percent shows a substantial improvement over five years ago. Historically, state-level response rates have varied from 40.2 percent to 60.3 percent. *The handful of colleges with occupational follow-up study response rates below recommended levels are asked to put forth additional effort to increase response rates for the coming year.* Minimum response rates for the Occupational Follow-up Survey have been established. For colleges surveying 30 or more graduates, a 50 percent response rate is required; for those surveying less than 30 graduates, a 60 percent response rate is required.

Occupational Graduate Follow-up Survey results are an integral part of another statewide accountability initiative known as the Performance-Based Incentive System (PBIS). Capturing a broader cross-section of respondents through the Occupational Follow-up Survey provides a more balanced picture of graduate outcomes for the current study and tracking PBIS outcomes. Student satisfaction and student success in employment/continued pursuit of education from the follow-up study are two of the five statewide PBIS measures. Occupational follow-up study data provide the percentage of students who are somewhat or very satisfied with courses in the student's major program of study, courses outside the students major program of study, and student support programs and services in a combined "overall student satisfaction" goal. In addition, the percentage of occupational completers reporting in the follow-up study that they are employed or continuing their education provide data for the "student success in employment/continued pursuit of education" goal. Points are deducted from a district's PBIS score if minimum standards are not met.

Overall results indicate that 18.0 percent of workers were in part-time positions. Six programs with more than ten graduates statewide exceeded this percentage: *Ornamental Horticulture Operations and Management; Medical Laboratory Aide/Phlebotomy; Travel Services Marketing Operations; Nurse Aid/Assistant; Horticulture Services Operations and Management; and Licensed Practical*

*Nurse (Table B-2).* Colleges with these programs should monitor local labor market needs to determine the availability of full-time employment in the field.

Overall, average graduate earnings were substantial at \$12.62/hour which is approximately 2.5 times minimum wage. Minimum wage is currently \$5.15 per hour. Earnings data by degree type show average earnings levels rose with higher levels of training. Wages for Associate Degree graduates averaged \$14.22 per hour or 2.76 times minimum wage. Average wages for graduates who earned certificates of over a year averaged \$11.65 or 2.26 times minimum wage. Average wages for completers of certificate programs of less than a year averaged \$9.24 or 1.79 times minimum wage. Completers from two small programs had graduates earning entry salaries that were less than one and one-half times minimum wage (\$7.73/hour): Agricultural Animal Husbandry and Production Management at \$7.50/hour or \$300/week (1.46 times minimum wage) and Equestrian/Equine Studies/Horse Management at \$7.40/hour (1.44 times minimum wage). Colleges with programs leading to occupations with relatively low initial earnings should make students aware of the compensation available in these fields both short and long term. While Equine Studies graduates working in the field ( $\bar{M} = 4.40$ ) reported a high degree of satisfaction with their jobs, Animal Husbandry graduates in related positions were less satisfied ( $\bar{M} = 3.75$ ) with their jobs.

Two of the major industries where community college graduates who participated in the study were employed are both in periods of transition. Across all nursing fields, college officials will need to remain particularly vigilant in monitoring the changing healthcare delivery system and adapting those program components they can to prepare graduates for employment where opportunities are expected to be best. Perhaps the largest impact will be felt in Registered Nursing (RN) programs. Jobs are moving away from hospitals and into other settings such as outpatient centers, home healthcare, and ambulatory care clinics. The core RN curriculum is quite extensive and built around standards in the field. Yet, as emerging high-level nursing opportunities are requiring more entrepreneurial skills, there is a need to provide nurses with at least some training in this area. Nursing graduates planning to work in hospital settings should automatically plan on seeking additional specialized training. The wave of changes sweeping through the healthcare industry have implications for additional nontechnical training; diversifying clinical site selection; and reiterating the need to strengthen advising, career planning, and counseling. Although still in the satisfied range, RN graduates rated advising, career planning, and counseling slightly lower than other nursing graduates.

Agriculture is an important industry in Illinois with rural areas benefitting most from production and urban areas heavily involved in food processing and agricultural manufacturing. According to *Horizons* (2000), fewer than 10 percent of agricultural graduates enter production work with most working in no-farm jobs that are closely related to agriculture. Events on the farm have a ripple effect across agriculture-related industry. In tough economic times, spending is curtailed. Recent events involving two years of record federal farm bailout legislation serve as a reminder of the potentially turbulent nature of the agriculture industry. Prices are not expected to recover until next autumn, if then. Recent events are expected to prompt a review of federal farm policy (<http://biz.yahoo.com/rf/991022/y5.html> “Clinton Signs U.S. Farm Bailout,” Charles Abbott, October 22, 1999, Reuters Limited, London, UK).

Community colleges have been active partners in workforce preparation for a long time. Their strong ties to the local community — area residents and employers — and their expanding roles in economic development are attracting renewed interest by many. The accelerated need for highly educated, high

skills workers has brought additional attention to the expanding role community colleges can play in preparing individuals for employment in the emerging economy.

What we need is a new Skill Development Option, developed in institutions that do not separate "training" and "education" as sharply as colleges (and universities) do, that are not rigidly tied to the four-year post-high-school residential model - and that employers view as imparting skills needed for workplace performance at levels as high or higher than four-year colleges.

Fortunately, we have in place an institution ideally situated to manage the majority of the necessary tasks: the nation's two-year community colleges. With the right kind of support, they can greatly improve the life chances of a majority of our youth (and adults). Community colleges have a track record of success in helping people develop needed skills. They are local institutions with close ties to city, county, regional, and state governments and institutions - and with local employers who can assist in training and job placement.

Daniel Yankelovich, "High Skills Option: A Different Kind of Success,"  
*Blueprint: Ideas for a New Century*, Fall 1999,  
<http://www.dlc.org/blueprint/fall/99/solutions12.html>



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APPENDIX A

**Occupational Follow-up Study Overview Tables  
for Selected Occupational Programs**

APPENDIX B

**Statewide Occupational Follow-up Study Tables  
for Selected Occupational Programs by  
Classification of Instructional Program Code**

APPENDIX C

**College-Level Occupational Follow-up Study Tables  
for Selected Occupational Programs by  
Classification of Instructional Program Code**

# ILLINOIS COMMUNITY COLLEGE SYSTEM

## 1999 FOLLOW-UP STUDY OF FISCAL YEAR 1998 OCCUPATIONAL PROGRAM GRADUATES

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