
# AN ANALYSIS OF THE EXTENT TO WHICH UNIVERSITIES MEET THE WORKFORCE NEEDS OF FLORIDA'S SKILLED ECONOMY

**Report and Recommendations by the**
**Florida Postsecondary Education Planning Commission**

**December 2000**

**POSTSECONDARY EDUCATION PLANNING COMMISSION**

# *An Analysis of the Extent to Which Universities Meet the Workforce Needs of Florida's Skilled Economy*

Prepared in Response to Specific Appropriations 153 through 157
of the 2000 General Appropriations Act
Chapter 2000-166, Laws of Florida

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# INTRODUCTION

## Legislative Charge

Proviso language accompanying the Specific Appropriations 153 through 157 of HB 2145 of the 2000 General Appropriations Act directs the Postsecondary Education Planning Commission to:

*Conduct an analysis of the extent to which public and private university degree programs are providing the skilled workforce needed by Florida's economy. The Commission shall coordinate this study with the Workforce Development Board and the Office of Tourism, Trade and Economic Development, the Florida Chamber of Commerce and other entities as needed. The Commission shall report its findings and recommendations to the Governor and the Legislature by December 31, 2000.*

## Overview

The importance of the role universities and colleges in meeting Florida's economic development needs is undisputed. Opportunities for growth in Florida's economy depend on the availability of a skilled workforce to meet the human resource needs of business and industry. In ***Challenges and Choices: The Master Plan for Florida Postsecondary Education***, the Postsecondary Education Planning Commission highlighted the importance of having an educated population for economic development in Florida. The Commission set the following goal for the State:

*Florida must increase the postsecondary education attainment of Floridians to meet workforce demand and to provide the intellectual resources for knowledge-based employment.*

These degree production goals are also an integral part of the ***State University System of Florida Strategic Plan 1998-2003***. In its plan, the Board of Regents articulated the following goals which support the statewide master plan: (1) To provide adequate access to undergraduate and graduate education, (2) To increase degree production at all levels, and (3) To enhance graduate education and research.

The state's economic development organization, Enterprise Florida, is currently involved in an effort to develop a statewide strategic plan. The "intellectual capacity" of Florida is an integral part of this plan and includes areas like basic education, higher education and workforce and continuing education.

The ultimate goal of this study involves determining whether the public and private universities in Florida are meeting Florida's current and future workforce needs. In addition to producing an adequate supply of graduates overall, it is also important that the distribution of those graduates by field should be sufficient to support Florida's workforce and economic development needs.

Determining the appropriate distribution of degrees is complicated by several factors. Several barriers exist when trying to identify labor

shortages based on an undersupply of graduates in certain fields. The linkage between the supply of university-trained individuals and the occupational demand for jobs requiring university level education is at best imperfect.

The two primary problems with this linkage involve:

1. Matching specific degree programs with occupational information, and;
2. Estimating the impact of in-migration and out-migration on occupational supply.

With the first problem, in many cases, it is not possible to directly match the labor market information systems (i.e. occupational employment codes) with university-level degree programs. Graduates of bachelor's, master's, and doctoral programs are qualified for and seek employment in a variety of occupations. There are few one-to-one matches between occupations and degree programs. For example, a graduate with a bachelor's degree in psychology, which is one of the largest programs in the state university system, may seek and achieve employment in a variety of occupational fields. Additionally, the available information on degree programs may not capture the level of specialization that students received in certain degree programs. The supply data does not reflect whether students are enrolled in particular tracks, which lead to employment in specific occupations.

On the second issue, some estimates of out-migration are available through data systems which track the employment of recent university graduates. But while it is possible to estimate the number of graduates from state universities who were found employed in Florida, it is impossible to get an accurate estimate of the effect of graduates from other states moving to Florida for occupational reasons.

## ISSUES

Traditionally, universities and colleges are not training institutions. With some exceptions, university and college degree programs do not provide direct training for specific occupations. This is particularly true when dealing with baccalaureate level education. Many programs provide a background in liberal education, which provides students with a base of knowledge and skills, but may not necessarily train for a particular occupation.

That said, the ability to match demand and supply in more general terms is certainly possible and appropriate. And for a subset of degree programs, the skills learned in a university program, particularly graduate level and higher, directly lead to employment in a specific occupation. This study will seek to address the issue of supply and demand of university-trained individuals with the following:

1. Identification of current occupational demand in Florida.
2. Analysis of the current supply of university-trained graduates from Florida's public and private institutions.
3. Identify, where possible, linkages between occupational supply and demand by several workforce areas: allied health, information technology, science and engineering, business and management, education, and legal professions.

## Identification of Workforce Demand

### State and Regional Employment Projections

The most comprehensive statewide survey of occupational employment projections is conducted by the Agency for Workforce Innovation's Labor Market Statistics division.[1] The benefits of this survey to the study are the identification of demand by standard occupational codes and identified links to training and educational requirements. The education and training requirements for occupations are based on a federal classification system, which reflects the general requirements for a particular occupation. This linkage may in some cases over or under estimate the educational requirements for a position but it does provide a general guideline for use in analysis of educational needs.

These labor market statistics are updated annually based on surveys of Florida employers. The most recent projections are produced based on the base year 1997 with job growth projected through 2007. The highlights of Florida's occupational employment outlook through 2007 include the following:

- Florida's annual job growth rate ranked number one compared to the five most populous states, a position the state has maintained for several years.

[1]This office was formerly housed in the Florida Department of Labor and Employment Security.

- Florida's annual job growth in number of new jobs created ranked number two in the nation, behind California.
- Florida's employment distribution by industry indicates that over 60 percent of jobs are in services and trade industries. Government is the third largest industry with most of the jobs in local education.

The forecast for certain occupational groups indicates that professional and service occupations have the fastest growth rates and the highest number of new jobs. These occupations account for nearly half of all new jobs projected through 2007. It is interesting to note that these two occupations are at extreme ends of the education spectrum.

***Only 19.7% of Florida's estimated annual job openings through 2007 require a bachelor's degree or higher.***

The three jobs with the highest growth rates are computer support specialist (77.2 percent), systems analyst (70.1 percent) and computer engineer (68.7 percent). Six of the ten fastest growing occupations are in the health care and computer technology fields. However, among the top ten occupations with the highest number of new jobs, only two require a bachelor's degree or higher – General Manager/Top Executive and Registered Nurse.

In reality, most of the new jobs projected for Florida do not even require university level education. All occupational codes are assigned an education and training requirement that indicates the minimum level required in the occupation. The forecasted annual openings through 2007 indicate that most job openings do not require a bachelor's degree or higher. Of the 357,056 estimated annual openings, 70,371 (19.7%) require a bachelor's degree or higher (Table 1).

## TABLE 1

### Annual Occupational Openings by Training Level

| Rank | Training Level Required | |
|---|---|---|
| 1 | Short-term On-the-job Training | 165,721 |
| 2 | Moderate-term On-the-Job Training | 43,743 |
| 3 | Bachelor's Degree | |
| 4 | Long-term On-the-Job Training | 25,914 |
| 5 | Work Experience in Related Occupation | 24,339 |
| 6 | Work Experience and Bachelor's Degree or Higher | |
| 7 | Associate's Degree | 14,489 |
| 8 | Postsecondary Vocational Training | 12,488 |
| 9 | First Professional Degree | 5,009 |
| 10 | Master's Degree | 3,020 |
| 11 | Doctoral Degree | 2,204 |
| | **TOTAL** | |

(a) Based on 1997-2007 Occupational Employment Forecast

## Identification of High Demand Occupations - The Workforce Estimating Conference

The primary mechanism for the development of targeted lists for high demand occupations in Florida is the Workforce Estimating Conference, formerly known as the Occupational Forecasting Conference. The Conference is established in law by s. 216.136 Florida Statutes.

The Conference principals are the Commissioner of Education, the Executive Office of the Governor, the director of the Office of Tourism, Trade, and Economic Development, the director of the Agency for Workforce Innovation, the Chancellor of the State University System, the Executive Director of the State Board of Community Colleges, the chair of the State Board of Nonpublic Career Education, the chair of Workforce Florida, Inc., the coordinator of the Office of Economic and Demographic Research, or their designees, and professional staff from the Senate and the House of Representatives who have forecasting and substantive expertise. In addition to the designated principals of the conference, non-principal participants of the conference shall include a representative of the Florida Chamber of Commerce and other interested parties. The principal representing the Executive Office of the Governor is designated to preside over the conference sessions.

The duties of the conference include the following: the development of official information on the workforce development system planning process as it relates to the personnel needs of current, new, and emerging industries as the conference determines is needed by the state planning and budgeting system. The development of this information must include short-term and long-term forecasts of employment demand for jobs by occupation and industry, entry and average wage forecasts among those occupations, and estimates of the supply of trained and qualified individuals available or potentially available for employment in those occupations, with special focus upon those occupations and industries which require high skills and have high entry wages and experienced wage levels.

The Florida Agency for Workforce Innovation and the Florida Education and Training Placement Information Program provide the data on job openings, wages and placement used by the Conference. Consideration is given to input provided by employers and training organizations as well.

In its previous form, the Occupational Forecasting Conference, the primary outcome was the development of high wage, high skill lists which were used in performance and accountability measures for the *community college and school district* postsecondary systems. Although occupations requiring a bachelor's degree or higher had been included in previous conferences, the 2000 Occupational Forecasting Conference did not produce an official list of high demand occupations requiring those education credentials.

## Other Estimates of Florida's Workforce Needs

Regional surveys of employers provide another perspective on Florida's skilled workforce needs. The following regional organizations have recently completed or are planning workforce surveys that determine regional needs: Broward Alliance, Suncoast Technology Alliance, the Tampa Bay Partnership, and the Orlando Economic Development Commission.

Some national studies have focused on the competitiveness of the states with regard to technology-based occupations. A recent report by the American Electronics Association (AEA) and the Nasdaq Stock Market finds that Florida is one of the nation's fastest growing high tech states. Specifically, the study, *CyberStates 4.0,* reported the following:

- 37 of every 1,000 private sector workers are employed by high tech firms.
- With 209,890 high tech workers, Florida ranks 6th in the nation.
- 40,087 high tech jobs were added between 1993 and 1998.
- Florida ranks 3rd in electromedical equipment manufacturing employment (5,000 jobs), 4th in communications services employment (69,700 jobs) and equipment manufacturing employment (21,000 jobs), and 5th in defense electronics manufacturing equipment (9,600 jobs).

At the same time, the AEA reports in their CyberEducation Report that high tech degrees have declined in recent years. Nationally, the number of high tech degrees declined by 5 percent between 1990 and 1996.

## PEPC Employer Needs Survey

The Commission sent out a survey in September 2000 to a sample of Florida employers. The survey sample was limited to employers who had employed a 1998-99 baccalaureate graduate in the fall of 1999. Within the survey, firms were asked several questions regarding the supply of graduates by the level of education required. In the statewide sample, 68 percent of firms indicated that the supply of employees with bachelor's degrees was adequate and 92 percent indicated that programs were available to provide the necessary training at the bachelor's level. Among the most difficult jobs to fill, reported by employers, were K-12 teachers, accountants/financial specialists, computer scientists, administrative specialty managers, health care maintenance/treatment, health services and engineers. Details of this survey are available in the "Study of the Need for Baccalaureate Degree Opportunities in Five Florida Counties," prepared for the Commission by the Education Commission of the States (ECS).

## Occupational Supply in Florida

The supply of baccalaureate, graduate and professional degrees is determined by the following factors:

- Graduates of the State University System of Florida
- Graduates of private colleges and universities in Florida
- In-migration of graduates from other states

Florida has ten public universities and 61 private colleges and universities that produce the state's graduates of bachelor's, master's, doctoral and professional degree programs. In 1996-97, the latest year for which statewide data is available, public and private universities produced 47,530 bachelor's degrees, 16, 244 master's degrees and 1,816 doctoral degrees (see Appendix, Tables 2, 3, 4).[2]

Degree production at all levels has trended upward in the last few years. Tables 5, 6 and 7 display public and private bachelor's, master's and doctoral degrees granted by discipline for 1993-94 and 1996-97. The following changes from 1993-94 to 1996-97 are:

***In 1996-97, public and private universities produced 47,530 bachelor's degrees, 16,244 master's degrees and 1,816 doctoral degrees.***

- Bachelor's degrees granted have increased by 4.64 percent statewide, with a 10.8 percent increase in degrees at public universities.
- Master's degrees granted have increased by 14.76 percent overall, with a 13.5 percent increase at public universities and a 16.4 percent increase at private universities and colleges.
- Doctoral degrees granted have increased by 11.5 percent overall, with an 8.6 percent increase at public universities and a 15.5 percent increase at private universities and colleges.

More recent data is available on the degree production at the state's public universities. Tables 8, 9, 10 and 11 display these trends in degrees granted by discipline for 1996-97, 1997-98 and 1998-99. The state's public universities granted 1,342 more bachelor's degrees in 1998-99 than in 1996-97, an increase of 4 percent. A large increase (11.2 percent) was also recorded in the number of master's degrees, from 8,954 in 1996-97 to 10,008 in 1998-99. There were much smaller gains the number of doctoral degrees over this period, only 23 more in 1998-99, representing a 2.2 percent increase. Among professional programs, the largest gains in degrees granted were in law and pharmacy programs, with only small increases in the health programs.

It is commonly recognized that Florida trails the nation in its per capita production of bachelor's, master's and graduate degrees. For years, Florida has consistently performed below the national average. In 1994-

[2]The only source of statewide and national information on degrees granted is the National Center for Education Statistics, Integrated Postsecondary Education Data Systems "Completers" Survey. Data from 1997-98 is expected to be released in late 2000 or early 2001.

95, Florida's bachelor's degree production was 76 percent of the average of the ten economically strongest states. The Commission set goals of reaching 80 percent of the top ten average by 2000 and 90 percent by 2010.

The latest analysis of bachelor's degree production ranks Florida 46th among all states and the District of Columbia in per capita production of bachelor's degree graduates in 1996-97. Florida produces 879 bachelor's degrees per 100,000 population aged 18-44, compared to the national per capita production of 1,076 (see Appendix, Table 2). Florida's bachelor's degree production is only 82 percent of the national average.

Similar deficiencies exist in the state's production of master's and doctoral degrees. Florida ranks 35th in per capita master's degree production and produces degrees at 78 percent of the national average (Table 3). Similarly, the state ranks 33rd in doctoral degree production, at 80 percent of the national average (Table 4).

## Distribution of Degrees by Discipline

With Florida's degree production below the national average at all educational levels, as expected, a similar deficiency exists by discipline. Tables 12-14 display the comparison of Florida to the nation in the per capita degree production by discipline. Table 12 displays the per capita bachelor's degree production by discipline for the United States and Florida. Florida performs better than the national average in only five disciplines: education, law and legal studies protective services, theological studies, and transportation and materials moving workers.[3] The state was very near the national average in business degrees granted (98 percent of the national average).

In the production of master's degree, Florida out-performs the nation by a small margin in five disciplines: engineering-related technologies, law and legal studies, library science, psychology, and transportation and materials moving workers (Table 13). Florida performed at near the national average in two disciplines, business (96 percent) and protective services (98 percent).

Table 14 indicates that Florida's performance in doctoral degree production exceeds the national average in nine disciplines: business,

[3]All degrees in transportation and material moving workers and are primarily aviation degrees grant by private institutions.

communications, computer and information science, education, home economics, liberal arts and sciences, library science, parks/recreation/ leisure and fitness studies, and protective services. Also, in doctoral degrees in psychology, state production approaches the national average (96 percent).

## Workforce Areas of Interest

The Postsecondary Education Planning Commission identified the following areas for consideration in the evaluation of the match between the graduates produced by Florida's universities and the needs of Florida's economy.

- Health Professions
- Information Technology Professions
- Science and Engineering Professions
- Business and Management Professions
- Education Professions
- Legal Profession

An analysis of the labor market needs matched with the available supply of skilled graduates will be organized around these areas. Tables 15 through 19 provide a summary of the occupational employment projections for jobs in these broad discipline categories (see Appendix). Business occupations comprise the largest number of projected job openings with 33,612, followed by education professions (11,103) and information technology (5,047).

## Health

The health professions are one of the few areas for which direct linkages between degree programs and occupational codes exist. The Commission has an ongoing interest in state's production of graduates in health professions,[4] and recently conducted an ad hoc analysis of health professions, as part of a follow-up to the state's master plan for postsecondary education.

Health degrees accounted for 8.3 percent of the bachelor's and 10.4 percent the master's degrees granted in the SUS in 1998-99. Most bachelor's degrees in health professions are produced in the public universities of Florida, 77.8 percent in 1996-97. The SUS granted 406 more health degrees in 1996-97 than in 1998-99, an increase of 16.5 percent.

[4] *Health Professions Report* (1983), *Comprehensive Health Professions Plan Review for Florida* (1988), *Florida Health Profession Profiles* (1991, 1995).

Table 15 provides a summary of the occupational demand information for health professions. At all educational levels, a total of 2,707 annual openings are anticipated in the health professions identified in this table.

The primary health professions with strong linkages between programs and occupations are the following:

- Nursing
- Physical Therapy
- Occupational Therapy
- Physician Assistant
- Pharmacy
- Medicine
- Dentistry
- Veterinary Medicine

## Nursing

Occupational demand for registered nurses is very high in Florida at this time. Florida Labor Market Statistics project 5,878 average annual openings for registered nurses between 1997 and 2007, with an expansion of 3,963 positions and 1,915 vacancies due to retirement, death, or other separation from the workforce.

The Florida Board of Nursing has approved 41 programs of professional nursing (R.N.), 15 of which are bachelor's programs. Public community colleges in Florida are the primary producers of registered nurses. However, four-year universities produce a significant number of nursing graduates. Public universities in Florida granted 1,134 bachelor's degrees in nursing, an increase of 17 percent since 1996-97. The upper division enrollment on nursing programs in the SUS has also risen in recent years, up 25 percent from 1993 to 1997.

At the graduate level, nurse practitioners, nurse anesthetists and nurse midwives are professions requiring at least a master's degree. Reliable data on the occupational demand for these professionals is not available, but anecdotal evidence suggests there is a high demand at this time. The universities in the state have responded to this demand in recent years by adding master's programs in nursing. Eight state universities offer master's level training in nursing and a ninth university is seeking approval.[5] Fall enrollments at the state universities have increased by 28 percent from 1993 to 1998 (from 681 to 875). The number of degrees

[5]Florida Atlantic University, Florida State University, International University, University of Florida, University of South Florida, University of Central Florida, Unversity of North Florida, and Florida A & M University. Florida Gulf Coast University has requested implementation approval for a master's degree in nursing.

granted increased 73.7 percent from 1993-94 to 1998-99 (from 190 to 330). Master's degree programs are also offered at two independent universities: Barry University and the University of Miami.

## Physical Therapy

Changes in the delivery and reimbursement for physical therapy services have affected the demand for physical therapists in recent years. According to a workforce study commissioned by the American Physical Therapy Association in 1997, a national surplus of physical therapists, with an oversupply of approximately 20 to 30 percent, is expected by 2005-2007. Florida has a projected demand of 459 annual openings for physical therapists, according to the most recent projections.

Florida has a large number of physical therapy programs available in the state. Eight public universities offer the master's in physical therapy that has recently become the standard for professional accreditation.[6] Entry-level physical therapy programs are also offered in the independent sector at the University of Miami, Nova Southeastern University (1994), Barry University (1989), Andrews University, and the Institute of Physical Therapy, St. Augustine.

## Occupational Therapy

As with physical therapy, changes in funding for the services of occupational therapists have had an impact on anticipated demand for these professionals. There are 255 projected annual openings for occupational therapists in Florida.

Basic occupational preparation is offered at four state universities: Florida Agricultural and Mechanical University, Florida International University, the University of Florida, and Florida Gulf Coast University. In the independent sector, entry-level programs are offered at Barry University (1989) and Nova Southeastern University (1995).

The state university programs granted 147 degrees in 1998-99, for an all time high. In 1996-97, Barry University conferred 29 occupational therapy degrees. Nova Southeastern University recently started a program and graduated its first class in 1997.

## Physician Assistant

The demand for physician assistants has grown significantly in recent years, similar to that of nurse practitioners. The projected number of

[6]University of Florida, Florida Agricultural and Mechanical University, Florida International University, University of Central Florida, University of North Florida, University of South Florida, Florida Atlantic University, and Florida Gulf Coast University (the last five of which were founded since 1990).

annual openings for physician assistants is 294 in Florida. Several state programs have responded to that increased demand with new programs and increased enrollments. Until recently the University of Florida (UF) offered the only public physician assistant program in the State. The program at UF was changed from a bachelor's to a master's in 1998. Miami-Dade Community College has recently opened an associate of science degree program. The first class from that program graduated in Summer 2000. Nova Southeastern University and Barry University offer the physician assistant programs in the state's independent sector. Nationally, the number of physician assistant programs has doubled since 1995.

## Pharmacy

The University of Florida (1923) and Florida Agricultural and Mechanical University (1951) offer entry-level pharmacy programs. The baccalaureate programs at UF and FAMU are being phased out as a result of the accreditation standards set by the American Council on Pharmaceutical Education. In the independent sector, Nova Southeastern University (1987) offers a doctor of pharmacy program, an entry-level program and a nontraditional program.

In the State University System, the number of degrees granted (baccalaureate and Pharm.D.) has averaged about 190 over the last five years. Nova Southeastern University graduated 78 pharmacy students (baccalaureate and Pharm.D.) in 1997-98.

## Medicine

Four universities offer medical professional education in Florida: University of Florida, University of South Florida, University of Miami, and Nova Southeastern University (osteopathic). The University of Florida offers the Program in Medical Sciences (PIMS) at Florida State University, which provides training for the first year of medical school (limited to 30 students per year). Students in the PIMS program complete the remainder of their training at University of Florida. In 2000, the Florida legislature authorized the creation of a full medical school at Florida State University. Currently, the state's medical schools enroll more than 500 new students each year with a total enrollment of slightly more than 2,000.

In 1996-97, the state's medical schools issued 460 medical degrees. Of those graduates, only 42 percent (192) stayed in Florida for graduate medical training (residency). Graduates from UF and NSU were more likely to stay in Florida (49 percent) than graduates of USF (42 percent) and the University of Miami (29 percent). The percentage of Florida graduates from the three allopathic medical schools who start residencies in Florida has fluctuated over the past few years from a low of 37 percent

in 1996 to a high of 48 percent in 1994. Table 20 provides a summary of Florida's production of undergraduate medical degrees compared to the rest of the nation. Florida ranks 39th among the nation and the District of Columbia in per capita production of undergraduate medical degrees.

The most recent analysis of the future demand and supply of physicians was conducted by the State University System (Board of Regents) and Florida State University, with MGT of America, Inc. contracted to conduct the analysis. Their report concluded that Florida is facing a shortage of physicians within the next twenty years as the population of Florida ages and its health care needs increase accordingly. The model used in this study predicts the number of new physicians needed using the following factors:

- Reaching the National Average – the model assumes a gradual phase-in of new physicians to reach the national average in physicians per capita.
- Population growth, particularly for persons aged 65 and over – the model assumes that the health care needs are greater for an elderly population.
- Growth in per capita income – the model assumes a positive correlation between per capita income and the demand for medical care.

Of these factors, population growth is responsible for much of the increased need for physicians predicted in the FSU model.

Given this model, Florida is currently experiencing a slight oversupply of physicians, with more than 2,600 new physicians being licensed each year. However, if the predicted changes in per capita income and population growth are realized, the model predicts that this surplus will become a shortage within a few years.

Previous reports have suggested that the nation as a whole is not facing a shortage of physicians, but rather an oversupply. The *Third Report of the Pew Health Professions Commission* (1995) recommended that medical school enrollments in the U.S. be reduced by 20 to 25 percent by 2005. Furthermore, the report recommended that this reduction should come from closing medical schools, not reducing class sizes at each institution. And in 1997, the American Medical Association and representatives of the nation's medical schools stated that the U.S. was training far too many doctors and that the number should be cut by at least 20 percent.

The Chancellor of the State University System, in his comments to the Board of Regents in March 1999, indicated that the physician shortage projected in the MGT report might not materialize. He cited the following

factors which could reduce the demand for physician services in the future: high percentage of Floridians in managed care organizations, rising costs which leads to limits on covered services, reorganization of health care services, services provided by non-physician clinicians such as nurse practitioners and physician assistants, expansion of medical technology, and public demand for alternative therapies.

The most important factor in determining the supply of physicians in Florida is not the awarding of undergraduate medical degrees but rather the location of graduate medical education residencies. Once a student receives a medical degree, the graduate must begin residency training. Currently, Florida has 529 first-year resident training slots and lags behind the national average in first-year residents per capita (3.7 students per 100,000 population v. 8.2 students per capita).[7] There are approximately 3,000 total physician residency slots in Florida.

The availability of GME residency training is a significant issue in increasing the number of physicians in Florida. There is a high correlation between the location of a physician's residency training and the geographic areas in which they choose to live and practice medicine. Funding for residency training by the state has become increasingly important, as federal funding support for graduate medical education has decreased in recent years. In attracting more physicians to Florida, the funding of graduate medical education is crucial. In the most recent estimate of the Board of Regents, 51% of residents in state funded programs remain in the state to practice following graduation.[8]

The state currently has 194 physician residency programs, 59 of which receive state support. In fiscal year 1999-00, funding was provided for the following physician specialties: family practice, general internal medicine, general pediatrics, emergency medicine, obstetrics/gynecology, psychiatry, combined internal medicine/pediatrics, and osteopathic internship.

## Dentistry

Two universities in Florida offer professional programs in dentistry: The University of Florida and Nova Southeastern University (opened in fall 1997). The University of Florida enrolls about 315 students each year in its dentistry program. Nova Southeastern University enrolled 88 students in 1997 and 75 in 1998.

[7]MGT of America, Inc., "An Assessment of Florida's Medical Education System," March 16, 1999.

[8]The percentage is based on students in the Community Hospital Education Program.

The University of Florida produced 78 new graduates in 1997-98, an increase of 20 graduates over 1988-89. A precise estimate of the number of dentists migrating to Florida from other states is not available. However, the Florida Board of Dentistry indicates that approximately 500 applicants take their exam each year with a pass rate of 75 percent. As a result, approximately 375 new dentists are licensed to practice in Florida, almost 5 times that number produced in the state.

The Florida Department of Labor and Employment Security projects that the number of dentists will increase by almost 5 percent from 1997 to 2007, with average annual openings of 399. Currently, with about 375 new dentists licensed in Florida each year and the recent opening of a new dental school, the supply of new dentists appears sufficient to meet the workforce needs for the next few years.

## Veterinary Medicine

One veterinary medicine program is located in Florida, the College of Veterinary Medicine at the University of Florida, which offers the professional degree in veterinary medicine (D.V.M.). Total enrollments in veterinary medicine have remained relatively stable since 1987 with a slight decline present since 1990. In 1997-98, 314 students were enrolled in the veterinary medicine professional program.

Annually, between 70 and 80 degrees are granted at the University of Florida College of Veterinary Medicine. It is difficult to estimate the number of veterinarians who migrate to Florida following training in other states. In, 1998-99, the Florida Board of Veterinary Medicine licensed 307 new veterinarians to practice in Florida. This number includes graduates from Florida and veterinarians who were licensed or graduated from programs in other states. Given that the University of Florida produces less than 80 new graduates per year, it appears that Florida imports the majority of its new veterinary professionals.

The Florida Department of Labor and Employment Security, Bureau of Labor Market and Performance Information, projects that between 1997 and 2007, the number of veterinarians in Florida will increase by 35.59 percent. The Bureau projects a total of 257 average annuals openings for employment in Florida, based on the projection for expansion of 159 positions and 92 vacancies due to retirement, death, or other separation from the workforce.

## Information Technology

As mentioned early in the report, the three jobs with the highest growth rates are in computer related fields: computer support specialist (77.2 percent), systems analyst (70.1 percent) and computer engineer (68.7 percent). Table 16 provides a summary of the occupational demand on

data for information technology professions. This list may not reflect the full picture with regard to projected demand for information technology workers. These occupational categories broadly reflect projected demand but there are no separate occupational codes for new jobs titles like web designer.

The state's public and private universities produced 915 computer and information science degrees in 1996-97, an increase of 3.51 percentover 1993-94 levels (see Table 5). Sixty eight percent of those graduates received their degree at a public state university. Master's and doctoral degree production in the state has also increased overall (Tables 6 and 7).

In more recent years, the SUS has increased its production of bachelor's in computer and information science, from 623 in 1996-97 to 780 in 1998-99 (a 25.2 percent increase). Its production of master's and doctoral degrees has declined since 1996-97 (Tables 9 and 10).

The number of graduates from the state's public and private universities does not reflect the entire universe of trained individuals that will fill jobs in information technology. Universities also offer certificate programs that train individuals in this field and provide the training in a much shorter time frame than required by a traditional degree program. The State University System estimates that they produced 4,000 completers of IT industry certificate programs in 1999-2000.

Additionally, not all training in IT occupations occurs in computer science and information system programs. Tracks within traditional degree programs like accounting and library science may provide training in the field, but are not reflected in the degree program categories. Table 21 provides a summary of information compiled by the State University System on degree programs that contain information technology components and tracks. Some of these degrees may lead to employment in information technology professions, though they are not in the traditional computer science degree area.

## Science and Engineering

The areas of science and engineering as well are architecture are combined here for analysis. The state projects a total of 3,910 annual openings in these engineering and architecture professions through 2007, and an additional 744 degrees in science-based professions (i.e. biological and physical sciences).

The state produced 2,988 bachelor's degrees in engineering and engineering technologies and 290 architecture degrees in 1996-97 (Table 5). The number of engineering degrees increased since 1993-94 while

engineering technology degrees decreased. The number of degrees in architectural professions increased by almost 45 percent during the same period of time. In more recent years, engineering bachelor's degrees granted have actually decreased in the state university system since 1996-97 (Table 8), but the number of master's degrees granted has increased by 6.2 percent (Table 9). Bachelor's degrees in architecture and related programs have increased by 15.9 percent (28 graduates) over this period.

In the biological and physical sciences, the number of degrees granted has generally trended upward. From 1993-94 to 1996-97, the state's production of bachelor's degrees in the biological sciences increased by 36.2 percent and by 7.1 percent in the physical sciences (Table 5). Master's degree in biological sciences increased by 50 percent, while physical science degrees decreased by almost 4 percent (Table 6). And at the doctoral level, biological science degrees declined slightly by less than 2 percent and physical science degrees increased by 5.5 percent (Table 7).

The recent history in degrees granted at Florida's public universities, provided in tables 8 through 10, reflect decreases in both disciplines at the bachelor's degree level from 1996-97 to 1998-99, 11.2 percent in biological sciences and 14.3 percent in physical sciences. Modest increases occurred at the master's level in both (1.9 percent and 2.9 percent, respectively), while the only increase at the doctoral level occurred in the physical sciences (9.8 percent).

## Business and Management

The occupational demand for business and management related positions is very high in Florida. More than 33,000 annual openings are projected for a variety of related professions. Unfortunately, it is very difficult to match occupations to degree programs (Table 18). The occupational demand data does not provide a clear indication of the discipline required to fill positions in this area.

In terms of degree production, business and management continues to be among the top degrees granted at public universities in the state. Twenty three percent of all bachelor's degrees granted in 1996-96 were in business and management degree programs. An even higher percentage of master's degrees (29 percent) were granted in these professions. Master's degrees granted in the public and private sector increased by 11.5 percent from 1993-94 to 1996-97.

The state's public universities have recently experienced large increases in business degrees granted at the bachelor's and master's level. The number of bachelor's and master's degrees increased 717 (10.5 percent) and 348 (21.3 percent), respectively, from 1996-97 to 1998-99.

## Education

Overall, some of the highest occupational demand in Florida is for elementary and secondary education teachers. Table 19 displays the latest occupational employment projections for teaching related professions in Florida. The best source for information on the current supply of new teachers is the Florida Department of Education. In its most recent report, "Trends in the Supply of New Teachers in Florida," the following findings are reported:

- Florida colleges and universities produce more than 6,000 new classroom teaching candidates each year. A survey of Florida colleges and universities indicates that 6,144 students completed teacher education degrees in 1998-99, which was the largest number ever.
- Approximately one-fifth of teachers completing programs for initial certification received their degrees from private institutions.
- There is a disconnection between the distribution of graduates by subject field and the demand for new teachers. One third of teacher vacancies are in elementary education but more than half of teacher education graduates majored in elementary. In specific fields, math and science vacancies were 6 and 5 percent, respectively, while the percent of graduates in math education was 2.8 percent and science education was 1.8 percent.
- There is significant undersupply in the number of graduates in exceptional (special) education.

It is clear that while Florida may produce a large number of teachers through its public and private universities, the DOE reports that currently the distribution of those degrees does not meet the distribution of job openings.

## Legal

Florida's labor market projections for lawyers indicate approximately 1,348 average annual openings between 1997 and 2007. Currently, seven universities in Florida offer programs in professional law which have been accredited by the American Bar Association: University of Florida, Florida State University, University of Miami, Stetson University, Nova Southeastern University, St. Thomas University, and Florida Coastal School of Law. In the 2000 legislative session, the legislature authorized the creation of two new public law schools at Florida International University and Florida A&M University.

In 1996-97, Florida law schools produced 1,713 new graduates, an increase of almost 200 over 1991-92. The number of lawyers produced at the state's public four-year institutions has increased slightly in recent years, increasing from 583 in 1996-97 to 617 in 1998-99. Table 22 provides a summary of Florida's production of law degrees compared to nation and indicates that Florida ranks 21st in per capita production of professional law degrees.

According to a report for the Young Lawyers Division of the Florida, conducted by the National Center for Higher Education Management Systems (NCHEMS), approximately 87 percent of these graduates could be expected to remain in Florida. In addition, the report concludes that Florida experiences very little in-migration of graduates from other states and "whatever competition exists in the legal job market in Florida is created by the existing in-state law schools and their graduates".

The NCHEMS report found that Florida graduates entered government jobs in larger proportions and the salaries paid for those jobs were lower than in other states. Based on their analysis of employment trends for law graduates in Florida, the report concludes, "the job market for Law graduates appears to be fairly tight and populated by in-state graduates".

# CONCLUSIONS

The principle question to be addressed through this analysis is the extent to which the needs of Florida's business and industry are being met through the production of graduates in the state's public and private universities. Unfortunately, a simple formula for making this determination does not exist. Higher education degrees, as measured by program classification, are not easily linked to specific occupations. Or alternatively, the occupational classifications are sufficiently broad that many graduates from different disciplines may be qualified to seek employment in those fields. The reality is that graduates in many different types of degrees programs, especially at the undergraduate level, are qualified for and seek employment in a variety of occupations. Unlike the training provided in associate and certificate programs, with some exceptions, the direct linkage between training program and occupation cannot be made. And continuing education efforts on university campuses provide training, particularly in information technology areas, for which routine reporting is not available.

The question then becomes how can it be determined whether Florida's degree production is sufficient for Florida's needs. It appears that only in the broadest terms can conclusions regarding the adequacy of degree production be made. The most recent occupational employment projections through 2007 indicate that Florida has annual job openings of 38,328 for occupations requiring a bachelor's degree. The state's public and private universities are producing close to 50,000 bachelor's degree graduates each year. Using this simplistic approach and assuming that 75 percent of graduates remain in the Florida, some might conclude that Florida's bachelor's degree needs are being met. But by using another common measure, degree production per capita, Florida is producing degrees at below the national average at the bachelor's, master's and doctoral levels.

The overall measure of degree production is only one aspect of the question though. It is the distribution of those degrees that determines whether the specific needs of Florida's businesses are being met. Overall, as with total degree production, Florida lags the nation in the production of degrees in most disciplines. This is critical because the future of Florida's economy depends on the ability of the state to attract more businesses to Florida. The human resources needs of businesses are important components in their decisions to remain in, expand to, or move jobs to Florida. Therefore, inadequacy in degree production hampers the ability of the state to maintain and to improve the employment opportunities for its citizens.

While the state has created a coordinated system to address workforce development needs, state coordination in the evaluation of higher education degree needs has been lacking. The inherent difficulty in determining shortages is the main, and perhaps insurmountable, barrier to reaching a definitive conclusion on this study question. Efforts are

being made at the state university level to address the issue of workforce outcomes from degree programs. The approval of new degree programs requires a demonstration of market need before state resources are expended. And the follow-up to degree programs, conducted through periodic program reviews, addresses issues of market demand and how well programs are performing in relation to the needs of businesses that employ graduates.

However, Florida needs to do a better job of identifying the needs of Florida's business and industry with regard to graduates from the state's universities. Unlike with workforce development occupations, a targeted list of high demand occupations has not been produced recently for occupations requiring a bachelor's degree or higher. Without state coordination between higher education representatives and Florida's business and industry, macro-level decisions on the state's unmet need for certain types of degrees will never be made.

# APPENDIX OF TABLES

## Table 2: Florida's Baccalaureate Degree Production in Terms of a (a) 18-44 Year Old Population (b) Higher Education Enrollment

| STATE | 1997 18-44 Population (thousands)[1] | | 1996-97 Bachelor's Degrees, Public & Private Insts.[2] | | (a) Bachelor's Degrees per 100K 18-44 Population | Rank | Fall 1996-97 Enrollment in 2 & 4 Year Public & Private | (b) Bachelor's Degrees Per 1,000 Enrollment | Rank |
|---|---|---|---|---|---|---|---|---|---|
| District of Columbia | | 236 | | 7,229 | 3,063 | 1 | 72,178 | 100 | 12 |
| Rhode Island | | 403 | | 8,319 | 2,064 | 2 | 72,432 | 115 | 4 |
| Utah | | 854 | | 15,806 | 1,851 | 3 | 147,810 | 107 | 9 |
| North Dakota | 1,091 | 253 | | 4,627 | 1,829 | 4 | 40,554 | 114 | 5 |
| Vermont | | 241 | 2,542 | 4,309 | 1,788 | 5 | 35,090 | 123 | 3 |
| Iowa | | | | 17,923 | 1,643 | 6 | 176,734 | 101 | 11 |
| Massachusetts | | | | 40,429 | 1,590 | 7 | 409,533 | 99 | 13 |
| Nebraska | | 646 | | 9,871 | 1,528 | 8 | 119,300 | 83 | 33 |
| New Hampshire | | 499 | | 7,581 | 1,519 | 9 | 60,986 | 124 | 2 |
| South Dakota | | 286 | | 4,230 | 1,479 | 10 | 33,674 | 126 | 1 |
| Montana | | 329 | | 4,752 | 1,444 | 11 | 43,145 | 110 | 7 |
| Delaware | | 309 | | 4,334 | 1,403 | 12 | 44,838 | 97 | 15 |
| Kansas | 2,068 | 1,031 | | 14,428 | 1,399 | 13 | 173,461 | 83 | 32 |
| Pennsylvania | | 4,656 | 7,294 | 62,443 | 1,341 | 14 | 562,130 | 111 | 6 |
| Wisconsin | | | | 27,405 | 1,325 | 15 | 297,064 | 92 | 18 |
| Missouri | | 2,125 | | 28,066 | 1,321 | 16 | 285,383 | 98 | 14 |
| New York | | | | 95,290 | 1,306 | 17 | 1,005,221 | 95 | 17 |
| Indiana | | 2,389 | | 30,477 | 1,276 | 18 | 283,221 | 108 | 8 |
| Colorado | 1,279 | 1,611 | | 19,892 | 1,235 | 19 | 236,355 | 84 | 30 |
| Minnesota | | 1,903 | | 22,618 | 1,189 | 20 | 270,847 | 84 | 31 |
| Oklahoma | | | | 15,123 | 1,182 | 21 | 175,973 | 86 | 28 |
| Alabama | | 1,750 | | 20,647 | 1,180 | 22 | 281,692 | 73 | 44 |
| West Virginia | | 695 | | 8,172 | 1,176 | 23 | 84,942 | 96 | 16 |
| North Carolina | 3,997 | 3,044 | | 34,202 | 1,124 | 24 | 373,052 | 92 | 19 |
| Maine | | 498 | | 5,565 | 1,117 | 25 | 53,922 | 103 | 10 |
| Michigan | 4,478 | | | 44,225 | 1,106 | 26 | 546,364 | 81 | 35 |
| Illinois | | 4,809 | 2,901 | 51,868 | 1,272 | 1,079 | 27 | 708,379 | 73 | 45 |
| Ohio | | | | 48,016 | | 1,072 | 28 | 524,756 | 92 | 21 |
| Virginia | | | 1,310 | 30,847 | | 1,063 | 29 | 342,725 | 90 | 22 |
| Oregon | | | 1,777 | 13,290 | | 1,045 | 30 | 164,521 | 81 | 36 |
| Connecticut | | | | 13,513 | | 1,032 | 31 | 155,355 | 87 | 25 |
| Arizona | | | | 17,831 | | 1,003 | 32 | 262,120 | 68 | 46 |
| Hawaii | | 477 | | 4,755 | | 997 | 33 | 60,708 | 78 | 38 |
| Louisiana | | 1,762 | | 17,507 | | 994 | 34 | 201,940 | 87 | 26 |
| South Carolina | | 1,547 | | 15,267 | | 987 | 35 | 173,754 | 88 | 24 |
| Washington | | 2,324 | | 22,893 | | 985 | 36 | 289,184 | 79 | 37 |
| Tennessee | | 2,182 | | 21,147 | | 969 | 37 | 244,975 | 86 | 27 |
| Arkansas | 2,165 | 957 | | 9,214 | | 963 | 38 | 100,688 | 92 | 20 |
| Idaho | | 473 | | 4,509 | | 953 | 39 | 59,537 | 76 | 42 |
| Maryland | | | | 20,384 | | 942 | 40 | 265,101 | 77 | 39 |
| Mississippi | | 1,095 | | 10,252 | | 936 | 41 | 126,234 | 81 | 34 |
| New Mexico | | 680 | | 6,326 | | 930 | 42 | 100,449 | 63 | 47 |
| Kentucky | 8,063 | 1,595 | **5,409** | 14,674 | | 920 | 43 | 173,194 | 85 | 29 |
| Wyoming | | 186 | | 1,652 | | 888 | 44 | 29,994 | 55 | 49 |
| Texas | | | 3,232 | 71,172 | | 883 | 45 | 947,634 | 75 | 43 |
| **Florida** | | | | **47,530** | | **879** | **46** | **625,317** | **76** | **41** |
| Georgia | | | | 27,519 | | 851 | 47 | 310,127 | 89 | 23 |
| California | | 13,707 | | 110,659 | | 807 | 48 | 1,853,197 | 60 | 48 |
| New Jersey | | 3,222 | | 24,845 | | 771 | 49 | 323,129 | 77 | 40 |
| Alaska | | 261 | | 1,473 | | 564 | 50 | 28,520 | 52 | 50 |
| Nevada | | 674 | | 3,705 | | 550 | 51 | 72,508 | 51 | 51 |
| **U.S.** | | **108,587** | | **1,168,811** | | **1,076** | | **14,029,947** | **83** | |

Notes:

(1) *1998 Statistical Abstract.* U.S. Census Bureau.

(2) *Digest of Education Statistics, 1999* . National Center for Education Statistics.
U.S. Total does not include degrees awarded by U.S. Service Schools.

**Table 3: Florida's Master's Degree Production (per capita)**

| STATE | 1997 18-44 Population (thousands)[1] | 1996-97 Master's Degrees, Public & Private Insts.[2] | Master's Degrees per 100K 18-44 Population | Rank |
|---|---|---|---|---|
| District of Columbia | 236 | 7,156 | 3,032 | 1 |
| Massachusetts | 2,542 | 23,957 | 942 | 2 |
| New York | 7,294 | 45,947 | 630 | 3 |
| Connecticut | 1,310 | 6,949 | 530 | 4 |
| Missouri | 2,125 | 11,259 | 530 | 5 |
| Illinois | 4,809 | 25,138 | 523 | 6 |
| New Hampshire | 499 | 2,441 | 489 | 7 |
| Vermont | 241 | 1,166 | 484 | 8 |
| Rhode Island | 403 | 1,909 | 474 | 9 |
| Colorado | 1,611 | 7,613 | 473 | 10 |
| Maryland | 2,165 | 9,909 | 458 | 11 |
| Kansas | 1,031 | 4,671 | 453 | 12 |
| Arizona | 1,777 | 7,646 | 430 | 13 |
| Pennsylvania | 4,656 | 19,912 | 428 | 14 |
| Alabama | 1,750 | 7,478 | 427 | 15 |
| Michigan | 3,997 | 16,793 | 420 | 16 |
| New Mexico | 680 | 2,635 | 388 | 17 |
| Virginia | 2,901 | 11,129 | 384 | 18 |
| Delaware | 309 | 1,184 | 383 | 19 |
| Utah | 854 | 3,186 | 373 | 20 |
| Nebraska | 646 | 2,395 | 371 | 21 |
| Ohio | 4,478 | 16,483 | 368 | 22 |
| South Dakota | 286 | 1,027 | 359 | 23 |
| Hawaii | 477 | 1,698 | 356 | 24 |
| Oklahoma | 1,279 | 4,447 | 348 | 25 |
| Minnesota | 1,903 | 6,507 | 342 | 26 |
| Oregon | 1,272 | 4,099 | 322 | 27 |
| West Virginia | 695 | 2,234 | 321 | 28 |
| Indiana | 2,389 | 7,590 | 318 | 29 |
| Tennessee | 2,182 | 6,886 | 316 | 30 |
| Wisconsin | 2,068 | 6,513 | 315 | 31 |
| Louisiana | 1,762 | 5,515 | 313 | 32 |
| Washington | 2,324 | 7,187 | 309 | 33 |
| Iowa | 1,091 | 3,340 | 306 | 34 |
| **Florida** | **5,409** | **16,244** | **300** | **35** |
| Georgia | 3,232 | 9,677 | 299 | 36 |
| South Carolina | 1,547 | 4,593 | 297 | 37 |
| Mississippi | 1,095 | 3,245 | 296 | 38 |
| Kentucky | 1,595 | 4,553 | 285 | 39 |
| Texas | 8,063 | 22,837 | 283 | 40 |
| California | 13,707 | 38,338 | 280 | 41 |
| North Dakota | 253 | 703 | 278 | 42 |
| North Carolina | 3,044 | 8,181 | 269 | 43 |
| New Jersey | 3,222 | 8,462 | 263 | 44 |
| Montana | 329 | 861 | 262 | 45 |
| Arkansas | 957 | 2,199 | 230 | 46 |
| Idaho | 473 | 1,057 | 223 | 47 |
| Wyoming | 186 | 393 | 211 | 48 |
| Maine | 498 | 1,033 | 207 | 49 |
| Alaska | 261 | 516 | 198 | 50 |
| Nevada | 674 | 1,023 | 152 | 51 |
| **U.S.** | **108,587** | **417,914** | **385** | |

**Table 4: Florida's Doctoral Degree Production (per capita)**

| STATE | 1997 18-44 Population (thousands)[1] | 1996-97 Doctoral Degrees, Public & Private Insts.[2] | Doctoral Degrees per 100K 18-44 Population | Rank |
|---|---|---|---|---|
| District of Columbia | 236 | 537 | 228 | 1 |
| Massachusetts | 2,542 | 2,272 | 89 | 2 |
| Delaware | 309 | 189 | 61 | 3 |
| Rhode Island | 403 | 240 | 60 | 4 |
| Iowa | 1,091 | 647 | 59 | 5 |
| Nebraska | 646 | 369 | 57 | 6 |
| Illinois | 4,809 | 2,665 | 55 | 7 |
| Colorado | 1,611 | 887 | 55 | 8 |
| New York | 7,294 | 3,898 | 53 | 9 |
| Pennsylvania | 4,656 | 2,437 | 52 | 10 |
| Ohio | 4,478 | 2,300 | 51 | 11 |
| Connecticut | 1,310 | 667 | 51 | 12 |
| Minnesota | 1,903 | 932 | 49 | 13 |
| Wisconsin | 2,068 | 986 | 48 | 14 |
| Indiana | 2,389 | 1,121 | 47 | 15 |
| Kansas | 1,031 | 471 | 46 | 16 |
| Maryland | 2,165 | 988 | 46 | 17 |
| Utah | 854 | 387 | 45 | 18 |
| Arizona | 1,777 | 789 | 44 | 19 |
| Wyoming | 186 | 79 | 42 | 20 |
| California | 13,707 | 5,675 | 41 | 21 |
| New Mexico | 680 | 280 | 41 | 22 |
| Oregon | 1,272 | 504 | 40 | 23 |
| Virginia | 2,901 | 1,145 | 39 | 24 |
| Hawaii | 477 | 185 | 39 | 25 |
| Michigan | 3,997 | 1,492 | 37 | 26 |
| Missouri | 2,125 | 777 | 37 | 27 |
| North Carolina | 3,044 | 1,094 | 36 | 28 |
| Oklahoma | 1,279 | 448 | 35 | 29 |
| Texas | 8,063 | 2,810 | 35 | 30 |
| North Dakota | 253 | 87 | 34 | 31 |
| Tennessee | 2,182 | 747 | 34 | 32 |
| **Florida** | **5,409** | **1,816** | **34** | **33** |
| South Dakota | 286 | 95 | 33 | 34 |
| New Jersey | 3,222 | 1,038 | 32 | 35 |
| Alabama | 1,750 | 562 | 32 | 36 |
| Washington | 2,324 | 735 | 32 | 37 |
| Louisiana | 1,762 | 544 | 31 | 38 |
| Mississippi | 1,095 | 326 | 30 | 39 |
| Georgia | 3,232 | 947 | 29 | 40 |
| Montana | 329 | 93 | 28 | 41 |
| New Hampshire | 499 | 138 | 28 | 42 |
| South Carolina | 1,547 | 409 | 26 | 43 |
| Kentucky | 1,595 | 411 | 26 | 44 |
| Vermont | 241 | 52 | 22 | 45 |
| West Virginia | 695 | 142 | 20 | 46 |
| Idaho | 473 | 90 | 19 | 47 |
| Arkansas | 957 | 149 | 16 | 48 |
| Maine | 498 | 75 | 15 | 49 |
| Nevada | 674 | 89 | 13 | 50 |
| Alaska | 261 | 20 | 8 | 51 |
| **U.S.** | **108,587** | **45,836** | **42** | |

## Table 5: Bachelor's Degrees Granted by Florida Public and Private 4-year Institutions, 1993-94 and 1996-97

| | | 1993-94 | | | 1996-1997 | | | # | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Discipline** | **Public** | **Private** | | | | | | | | | | |
| 01 | Agri Business & Production | 118 | 33 | 151 | 100 | 18 | 118 | -18 | -15 | | | | |
| 02 | Agricultural Sciences | 142 | 0 | | | | | | | | | | |
| 03 | Conserv & Renewable Nat Res | 45 | 7 | 52 | 216 | 33 | | | | | | | |
| 04 | Architecture & Related Progs | 132 | 69 | 201 | 176 | 114 | 290 | 44 | 45 | 89 | | | |
| 05 | Area/Ethnic/Cultural Studies | 62 | 38 | | | | | | | | | | |
| 08 | Market Oper/Market & Distrib | | 75 | 75 | 0 | 55 | 55 | 0 | -20 | -20 | == | | |
| 09 | Communications | | | | | | | | | | | | |
| 10 | Communications Technologies | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | == | == | == |

**Table 6: Master's Degrees Granted By Florida Public And Private 4-Year Institutions, 1993-94 And 1996-97**

| | Discipline | 1993-1994 | | | 1996-1997 | | | # Increase 92-93 to 96-97 | | | % Increase 92-93 to 96-97 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Public | Private | TOTAL | Public | Private | TOTAL | Public | Private | TOTAL | Public | Private | TOTAL |
| 01 | Agri Business & Production | 12 | 0 | 12 | 12 | 0 | 12 | 0 | 0 | 0 | 0.00% | == | 0.00% |
| 02 | Agricultural Sciences | 62 | 0 | 62 | 56 | 0 | 56 | -6 | 0 | -6 | -9.68% | == | -9.68% |
| 03 | Conserv & Renewable Nat Res | 25 | 8 | 33 | 27 | 10 | 37 | 2 | 2 | 4 | 8.00% | 25.00% | 12.12% |
| 04 | Architecture & Related Progs | 125 | 14 | 139 | 124 | 16 | 140 | -1 | 2 | 1 | -0.80% | 14.29% | 0.72% |
| 05 | Area/Ethnic/Cultural Studies | 38 | 0 | 38 | 31 | 0 | 31 | -7 | 0 | -7 | -18.42% | == | -18.42% |
| 09 | Communications | 115 | 30 | 145 | 102 | 18 | 120 | -13 | -12 | -25 | -11.30% | -40.00% | -17.24% |
| 10 | Communications Technologies | 0 | 5 | 5 | 0 | 3 | 3 | 0 | -2 | -2 | == | -40.00% | -40.00% |
| 11 | Computer & Information Sci | 174 | 159 | 333 | 173 | 175 | 348 | -1 | 16 | 15 | -0.57% | 10.06% | 4.50% |
| 13 | Education | 2,050 | 1,124 | 3,174 | 2,490 | 1,252 | 3,742 | 440 | 128 | 568 | 21.46% | 11.39% | 17.90% |
| 14 | Engineering | 864 | 177 | 1,041 | 869 | 132 | 1,001 | 5 | -45 | -40 | 0.58% | -25.42% | -3.84% |
| 15 | Engineering-Related Techs | 49 | 14 | 63 | 57 | 6 | 63 | 8 | -8 | 0 | 16.33% | -57.14% | 0.00% |
| 16 | Foreign Languages & Lits | 82 | 4 | 86 | 86 | 0 | 86 | 4 | -4 | 0 | 4.88% | -100.00% | 0.00% |
| 19 | Home Economics | 16 | 32 | 48 | 34 | 72 | 106 | 18 | 40 | 58 | 112.50% | 125.00% | 120.83% |
| 22 | Law & Legal Studies | 56 | 78 | 134 | 79 | 89 | 168 | 23 | 11 | 34 | 41.07% | 14.10% | 25.37% |
| 23 | English Language/Lit/Letters | 139 | 24 | 163 | 126 | 23 | 149 | -13 | -1 | -14 | -9.35% | -4.17% | -8.59% |
| 24 | Lib Arts, Sci/Gen Studs, Hum | 32 | 29 | 61 | 29 | 28 | 57 | -3 | -1 | -4 | -9.38% | -3.45% | -6.56% |
| 25 | Library Science | 174 | 0 | 174 | 277 | 0 | 277 | 103 | 0 | 103 | 59.20% | == | 59.20% |
| 26 | Biological Sciences/Life Sci | 76 | 62 | 138 | 107 | 100 | 207 | 31 | 38 | 69 | 40.79% | 61.29% | 50.00% |
| 27 | Mathematics | 117 | 18 | 135 | 82 | 26 | 108 | -35 | 8 | -27 | -29.91% | 44.44% | -20.00% |
| 30 | Multi/Interdisciplin Studies | 17 | 9 | 26 | 12 | 0 | 12 | -5 | -9 | -14 | -29.41% | -100.00% | -53.85% |
| 31 | Parks/Rec/Leisure/Fitness | 21 | 3 | 24 | 31 | 4 | 35 | 10 | 1 | 11 | 47.62% | 33.33% | 45.83% |
| 38 | Philosophy & Religion | 15 | 4 | 19 | 14 | 3 | 17 | -1 | -1 | -2 | -6.67% | -25.00% | -10.53% |
| 39 | Theol Studs & Religious Voc | 0 | 113 | 113 | 0 | 29 | 29 | 0 | -84 | -84 | == | -74.34% | -74.34% |
| 40 | Physical Sciences | 132 | 52 | 184 | 140 | 37 | 177 | 8 | -15 | -7 | 6.06% | -28.85% | -3.80% |
| 42 | Psychology | 189 | 426 | 615 | 168 | 559 | 727 | -21 | 133 | 112 | -11.11% | 31.22% | 18.21% |
| 43 | Protective Services | 69 | 0 | 69 | 90 | 0 | 90 | 21 | 0 | 21 | 30.43% | == | 30.43% |
| 44 | Public Administration & Svcs | 653 | 222 | 875 | 685 | 182 | 867 | 32 | -40 | -8 | 4.90% | -18.02% | -0.91% |
| 45 | Social Sciences & History | 264 | 44 | 308 | 297 | 68 | 365 | 33 | 24 | 57 | 12.50% | 54.55% | 18.51% |
| 49 | Transport & Mat Moving Wrkrs | 0 | 587 | 587 | 0 | 837 | 837 | 0 | 250 | 250 | == | 42.59% | 42.59% |
| 50 | Visual & Performing Arts | 153 | 67 | 220 | 182 | 56 | 238 | 29 | -11 | 18 | 18.95% | -16.42% | 8.18% |
| 51 | Health Professions & Rel Sci | 652 | 302 | 954 | 944 | 568 | 1,512 | 292 | 266 | 558 | 44.79% | 88.08% | 58.49% |
| 52 | Business Mgmt & Admin Svcs | 1,520 | 2,650 | 4,170 | 1,630 | 3,020 | 4,650 | 110 | 370 | 480 | 7.24% | 13.96% | 11.51% |
| 95 | Undesignated Field Of Study | 0 | 27 | 27 | 0 | 0 | 0 | 0 | -27 | -27 | == | -100.00% | -100.00% |
| | TOTAL | 7,891 | 6,284 | 14,175 | 8,954 | 7,313 | 16,267 | 1,063 | 1,029 | 2,092 | 13.47% | 16.37% | 14.76% |

SOURCE: IPEDS, Completers surveys

**Table 7: Doctoral Degrees Granted By Florida Public And Private 4-Year Institutions, 1993-94 And 1996-97**

| | Discipline | 1993-1994 | | | 1996-1997 | | | # Increase 93-94 to 96-97 | | | % Increase 93-94 to 96-97 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Public | Private | TOTAL | Public | Private | TOTAL | Public | Private | TOTAL | Public | Private | TOTAL |
| 01 | Agri Business & Production | 9 | 0 | 9 | 6 | 0 | 6 | -3 | 0 | -3 | -33.3% | == | -33.3% |
| 02 | Agricultural Sciences | 36 | 0 | 36 | 35 | 0 | 35 | -1 | 0 | -1 | -2.8% | == | -2.8% |
| 03 | Conserv & Renewable Nat Res | 8 | 1 | 9 | 11 | 0 | 11 | 3 | -1 | 2 | 37.5% | == | 22.2% |
| 04 | Architecture & Related Progs | 7 | 0 | 7 | 2 | 0 | 2 | -5 | 0 | -5 | -71.4% | == | -71.4% |
| 09 | Communications | 25 | 0 | 25 | 16 | 0 | 16 | -9 | 0 | -9 | -36.0% | == | -36.0% |
| 11 | Computer & Information Sci | 12 | 24 | 36 | 13 | 37 | 50 | 1 | 13 | 14 | 8.3% | 54.2% | 38.9% |
| 13 | Education | 208 | 320 | 528 | 231 | 351 | 582 | 23 | 31 | 54 | 11.1% | 9.7% | 10.2% |
| 14 | Engineering | 128 | 17 | 145 | 171 | 21 | 192 | 43 | 4 | 47 | 33.6% | 23.5% | 32.4% |
| 16 | Foreign Languages & Lits | 5 | 1 | 6 | 19 | 0 | 19 | 14 | -1 | 13 | 280.0% | == | 216.7% |
| 19 | Home Economics | 8 | 94 | 102 | 19 | 109 | 128 | 11 | 15 | 26 | 137.5% | 16.0% | 25.5% |
| 20 | Vocational Home Economics | 0 | 3 | 3 | 0 | 0 | 0 | 0 | -3 | -3 | == | == | -100.0% |
| 23 | English Language/Lit/Letters | 27 | 4 | 31 | 50 | 4 | 54 | 23 | 0 | 23 | 85.2% | 0.0% | 74.2% |
| 24 | Lib Arts, Sci/Gen Studs, Hum | 12 | 1 | 13 | 9 | 0 | 9 | -3 | -1 | -4 | -25.0% | == | -30.8% |
| 25 | Library Science | 7 | 0 | 7 | 7 | 0 | 7 | 0 | 0 | 0 | 0.0% | == | 0.0% |
| 26 | Biological Sciences/Life Sci | 50 | 17 | 67 | 52 | 14 | 66 | 2 | -3 | -1 | 4.0% | -17.6% | -1.5% |
| 27 | Mathematics | 21 | 5 | 26 | 22 | 6 | 28 | 1 | 1 | 2 | 4.8% | 20.0% | 7.7% |
| 30 | Multi/Interdisciplin Studies | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | == | 0.0% | 0.0% |
| 31 | Parks/Rec/Leisure/Fitness | 4 | 0 | 4 | 6 | 0 | 6 | 2 | 0 | 2 | 50.0% | == | 50.0% |
| 38 | Philosophy & Religion | 5 | 2 | 7 | 2 | 4 | 6 | -3 | 2 | -1 | -60.0% | 100.0% | -14.3% |
| 39 | Theol Studs & Religious Voc | 0 | 30 | 30 | 0 | 0 | 0 | 0 | -30 | -30 | == | -100.0% | -100.0% |
| 40 | Physical Sciences | 98 | 12 | 110 | 92 | 24 | 116 | -6 | 12 | 6 | -6.1% | 100.0% | 5.5% |
| 42 | Psychology | 64 | 121 | 185 | 56 | 138 | 194 | -8 | 17 | 9 | -12.5% | 14.0% | 4.9% |
| 43 | Protective Services | 4 | 0 | 4 | 2 | 0 | 2 | -2 | 0 | -2 | -50.0% | == | -50.0% |
| 44 | Public Administration & Svcs | 17 | 6 | 23 | 14 | 8 | 22 | -3 | 2 | -1 | -17.6% | 33.3% | -4.3% |
| 45 | Social Sciences & History | 74 | 9 | 83 | 71 | 14 | 85 | -3 | 5 | 2 | -4.1% | 55.6% | 2.4% |
| 50 | Visual & Performing Arts | 16 | 12 | 28 | 23 | 8 | 31 | 7 | -4 | 3 | 43.8% | -33.3% | 10.7% |
| 51 | Health Professions & Rel Sci | 57 | 4 | 61 | 68 | 23 | 91 | 11 | 19 | 30 | 19.3% | 475.0% | 49.2% |
| 52 | Business Mgmt & Admin Svcs | 57 | 31 | 88 | 44 | 64 | 108 | -13 | 33 | 20 | -22.8% | 106.5% | 22.7% |
| | TOTAL | 959 | 715 | 1,674 | 1,041 | 826 | 1,867 | 82 | 111 | 193 | 8.6% | 15.5% | 11.5% |

SOURCE: IPEDS, Completers surveys

**Table 8: Bachelor's Degrees Granted by Florida Public Universities, 1996-97 to 1998-99**

| | Discipline | 1996-97 | 1997-98 | 1998-99 | # Increase | % Increase |
|---|---|---|---|---|---|---|
| 01 | Agri Business & Production | 100 | 99 | 83 | -17 | -17.0% |
| 02 | Agricultural Sciences | 295 | 320 | 324 | 29 | 9.8% |
| 03 | Conserv & Renewable Nat Res | 216 | 227 | 262 | 46 | 21.3% |
| 04 | Architecture & Related Progs | 176 | 187 | 204 | 28 | 15.9% |
| 05 | Area/Ethnic/Cultural Studies | 66 | 53 | 43 | -23 | -34.8% |
| 09 | Communications | 1,634 | 1,787 | 1,917 | 283 | 17.3% |
| 11 | Computer & Information Sci | 623 | 722 | 780 | 157 | 25.2% |
| 13 | Education | 4,517 | 4,582 | 4,515 | -2 | 0.0% |
| 14 | Engineering | 2,043 | 1,964 | 2,032 | -11 | -0.5% |
| 15 | Engineering-Related Techs | 311 | 300 | 298 | -13 | -4.2% |
| 16 | Foreign Languages & Lits | 258 | 274 | 276 | 18 | 7.0% |
| 19 | Home Economics | 433 | 434 | 482 | 49 | 11.3% |
| 22 | Law & Legal Studies | 168 | 159 | 150 | -18 | -10.7% |
| 23 | English Language/Lit/Letters | 1,279 | 1,336 | 1,314 | 35 | 2.7% |
| 24 | Lib Arts, Sci/Gen Studs, Hum | 620 | 575 | 634 | 14 | 2.3% |
| 25 | Library and Archival Sci | | 20 | 39 | | |
| 26 | Biological Sciences/Life Sci | 1,336 | 1,302 | 1,187 | -149 | -11.2% |
| 27 | Mathematics | 206 | 214 | 189 | -17 | -8.3% |
| 30 | Multi/Interdisciplin Studies | 252 | 228 | 209 | -43 | -17.1% |
| 31 | Parks/Rec/Leisure/Fitness | 252 | 272 | 270 | 18 | 7.1% |
| 38 | Philosophy & Religion | 150 | 157 | 138 | -12 | -8.0% |
| 40 | Physical Sciences | 391 | 401 | 335 | -56 | -14.3% |
| 42 | Psychology | 2,158 | 2,324 | 2,260 | 102 | 4.7% |
| 43 | Protective Services | 1,590 | 1,456 | 1,430 | -160 | -10.1% |
| 44 | Public Administration & Svcs | 698 | 736 | 703 | 5 | 0.7% |
| 45 | Social Sciences & History | 3,137 | 3,037 | 2,986 | -151 | -4.8% |
| 50 | Visual & Performing Arts | 1,008 | 1,066 | 1,076 | 68 | 6.7% |
| 51 | Health Professions & Rel Sci | 2,468 | 2,778 | 2,874 | 406 | 16.5% |
| 52 | Business Mgmt & Admin Svcs | 6,802 | 7,065 | 7,519 | 717 | 10.5% |
| | TOTAL | 33,187 | 34,075 | 34,529 | 1,342 | 4.0% |

SOURCE: IPEDS Completer Survey 1996 and State University System Fact Books.

**Table 9: Master's Degrees Granted by Florida Public Universities, 1996-97 to 1998-99**

| | Discipline | 1996-97 | 1997-98 | 1998-99 | # Increase | % Increase |
|---|---|---|---|---|---|---|
| 01 | Agri Business & Production | 12 | 11 | 10 | -2 | -16.7% |
| 02 | Agricultural Sciences | 56 | 39 | 90 | 34 | 60.7% |
| 03 | Conserv & Renewable Nat Res | 27 | 36 | 44 | 17 | 63.0% |
| 04 | Architecture & Related Progs | 124 | 167 | 109 | -15 | -12.1% |
| 05 | Area/Ethnic/Cultural Studies | 31 | 26 | 25 | -6 | -19.4% |
| 09 | Communications | 102 | 143 | 128 | 26 | 25.5% |
| 11 | Computer & Information Sci | 173 | 128 | 142 | -31 | -17.9% |
| 13 | Education | 2,490 | 2,881 | 2,955 | 465 | 18.7% |
| 14 | Engineering | 869 | 876 | 923 | 54 | 6.2% |
| 15 | Engineering-Related Techs | 57 | 53 | 57 | 0 | 0.0% |
| 16 | Foreign Languages & Lits | 86 | 87 | 84 | -2 | -2.3% |
| 19 | Home Economics | 34 | 51 | 48 | 14 | 41.2% |
| 22 | Law & Legal Studies | 79 | 66 | 82 | 3 | 3.8% |
| 23 | English Language/Lit/Letters | 126 | 137 | 126 | 0 | 0.0% |
| 24 | Lib Arts, Sci/Gen Studs, Hum | 29 | 14 | 21 | -8 | -27.6% |
| 25 | Library Science | 277 | 275 | 263 | -14 | -5.1% |
| 26 | Biological Sciences/Life Sci | 107 | 112 | 109 | 2 | 1.9% |
| 27 | Mathematics | 82 | 81 | 70 | -12 | -14.6% |
| 30 | Multi/Interdisciplin Studies | 12 | 6 | 14 | 2 | 16.7% |
| 31 | Parks/Rec/Leisure/Fitness | 31 | 24 | 34 | 3 | 9.7% |
| 38 | Philosophy & Religion | 14 | 24 | 22 | 8 | 57.1% |
| 40 | Physical Sciences | 140 | 165 | 144 | 4 | 2.9% |
| 42 | Psychology | 168 | 197 | 185 | 17 | 10.1% |
| 43 | Protective Services | 90 | 95 | 96 | 6 | 6.7% |
| 44 | Public Administration & Svcs | 685 | 814 | 695 | 10 | 1.5% |
| 45 | Social Sciences & History | 297 | 321 | 333 | 36 | 12.1% |
| 50 | Visual & Performing Arts | 182 | 174 | 166 | -16 | -8.8% |
| 51 | Health Professions & Rel Sci | 944 | 1,039 | 1,055 | 111 | 11.8% |
| 52 | Business Mgmt & Admin Svcs | 1,630 | 1,788 | 1,978 | 348 | 21.3% |
| | TOTAL | 8,954 | 9,830 | 10,008 | 1054 | 11.8% |

SOURCE: IPEDS Completer Survey 1996 and State University System Fact Books.

**Table 10: Doctoral Degrees Granted by Florida Public Universities, 1996-97 to 1998-99**

| | Discipline | 1996-1997 | 1997-98 | 1998-99 | # Increase | % Increase |
|---|---|---|---|---|---|---|
| 01 | Agri Business & Production | 6 | 5 | 4 | -2 | -33.3% |
| 02 | Agricultural Sciences | 35 | 40 | 24 | -11 | -31.4% |
| 03 | Conserv & Renewable Nat Res | 11 | 12 | 11 | 0 | 0.0% |
| 04 | Architecture & Related Progs | 2 | 2 | 6 | 4 | 200.0% |
| 09 | Communications | 16 | 12 | 16 | 0 | 0.0% |
| 11 | Computer & Information Sci | 13 | 12 | 10 | -3 | -23.1% |
| 13 | Education | 231 | 251 | 236 | 5 | 2.2% |
| 14 | Engineering | 171 | 174 | 181 | 10 | 5.8% |
| 16 | Foreign Languages & Lits | 19 | 16 | 16 | -3 | -15.8% |
| 19 | Home Economics | 19 | 11 | 10 | -9 | -47.4% |
| 23 | English Language/Lit/Letters | 50 | 35 | 34 | -16 | -32.0% |
| 24 | Lib Arts, Sci/Gen Studs, Hum | 9 | 11 | 8 | -1 | -11.1% |
| 25 | Library Science | 7 | 5 | 2 | -5 | -71.4% |
| 26 | Biological Sciences/Life Sci | 52 | 55 | 51 | -1 | -1.9% |
| 27 | Mathematics | 22 | 29 | 18 | -4 | -18.2% |
| 31 | Parks/Rec/Leisure/Fitness | 6 | 9 | 7 | 1 | 16.7% |
| 38 | Philosophy & Religion | 2 | 5 | 5 | 3 | 150.0% |
| 40 | Physical Sciences | 92 | 134 | 101 | 9 | 9.8% |
| 42 | Psychology | 56 | 63 | 70 | 14 | 25.0% |
| 43 | Protective Services | 2 | 8 | 9 | 7 | 350.0% |
| 44 | Public Administration & Svcs | 14 | 17 | 15 | 1 | 7.1% |
| 45 | Social Sciences & History | 71 | 73 | 68 | -3 | -4.2% |
| 50 | Visual & Performing Arts | 23 | 15 | 28 | 5 | 21.7% |
| 51 | Health Professions & Rel Sci | 68 | 70 | 87 | 19 | 27.9% |
| 52 | Business Mgmt & Admin Svcs | 44 | 57 | 47 | 3 | 6.8% |
| | TOTAL | 1,041 | 1,121 | 1,064 | 23 | 2.2% |

SOURCE: IPEDS Completer Survey 1996 and State University System Fact Books.

**Table 11: First Professional Degrees Granted by Florida Public Universities, 1996-97 to 1998-99**

| Degree | 1996-1997 | 1997-98 | 1998-99 | # Increase | % Increase |
|---|---|---|---|---|---|
| Law | 583 | 587 | 617 | 34 | 5.8% |
| Medicine | 202 | 211 | 206 | 4 | 2.0% |
| Veterinary Medicine | 77 | 76 | 78 | 1 | 1.3% |
| Dentistry | 70 | 78 | 78 | 8 | 11.4% |
| Pharmacy | 104 | 176 | 162 | 58 | 55.8% |
| TOTAL | 1,036 | 1,128 | 1,141 | 105 | 10.1% |

SOURCE: State University System Fact Books.

## Table 12: The Nation v. Florida: Per Capita Bachelor's Degrees Granted by Discipline, 1996-97

| DISCIPLINE | THE NATION | | FLORIDA | | |
|---|---|---|---|---|---|
| | Total Degrees [1] | Per Capita [2] | Total Degrees [1] | Per Capita [2] | *Florida as % of Nation* |
| Agriculture & natural resources [3] | 22,602 | 20.81 | 662 | 12.24 | *59%* |
| Architecture & related programs | 7,944 | 7.32 | 290 | 5.36 | *73%* |
| Area, ethnic & cultural studies | 5,839 | 5.38 | 92 | 1.70 | *32%* |
| Biological/Life Sciences | 63,975 | 58.92 | 1,960 | 36.24 | *62%* |
| Business [4] | 226,633 | 208.71 | 11,111 | 205.42 | *98%* |
| Communications [5] | 47,768 | 43.99 | 2,055 | 37.99 | *86%* |
| Computer & information sciences | 24,768 | 22.81 | 915 | 16.92 | *74%* |
| Construction trades | 108 | 0.10 | == | == | == |
| Education | 105,233 | 96.91 | 5,781 | 106.88 | ***110%*** |
| Engineering | 61,185 | 56.35 | 2,444 | 45.18 | *80%* |
| Engineering-related technologies | 13,816 | 12.72 | 544 | 10.06 | *79%* |
| English language & literature/letters | 49,345 | 45.44 | 1,553 | 28.71 | *63%* |
| Foreign languages & literature | 13,674 | 12.59 | 292 | 5.40 | *43%* |
| Health professions & related sciences | 85,631 | 78.86 | 3,174 | 58.68 | *74%* |
| Home economics & vocational home economics | 16,571 | 15.26 | 433 | 8.01 | *52%* |
| Law & legal studies | 2,038 | 1.88 | 227 | 4.20 | ***224%*** |
| Liberal arts & sciences, general studies & humanities | 34,776 | 32.03 | 1,274 | 23.55 | *74%* |
| Library science | 48 | 0.04 | == | == | == |
| Mathematics | 12,820 | 11.81 | 278 | 5.14 | *44%* |
| Mechanics & repairers | 48 | 0.04 | == | == | |
| Multi/interdisciplinary studies | 26,137 | 24.07 | 319 | 5.90 | *25%* |
| Parks, recreation, leisure & fitness studies | 15,401 | 14.18 | 334 | 6.17 | *44%* |
| Philosophy & religion | 7,685 | 7.08 | 233 | 4.31 | *61%* |
| Physical sciences & science technologies [6] | 19,531 | 17.99 | 502 | 9.28 | *52%* |
| Precision production trades | 326 | 0.30 | == | == | == |
| Protective services | 25,165 | 23.17 | 1,800 | 33.28 | ***144%*** |
| Psychology | 74,191 | 68.32 | 2,933 | 54.22 | *79%* |
| Public administration | 20,649 | 19.02 | 816 | 15.09 | *79%* |
| ROTC & military technologies | 4 | 0.00 | == | == | == |
| Social sciences & history | 124,891 | 115.01 | 3,988 | 73.73 | *64%* |
| Theological studies/religious vocations | 5,591 | 5.15 | 305 | 5.64 | ***110%*** |
| Transportation & material moving workers | 3,547 | 3.27 | 1,572 | 29.06 | ***890%*** |
| Visual & performing arts | 50,083 | 46.12 | 1,637 | 30.26 | *66%* |
| Not classified by field of study | 4,856 | 4.47 | == | == | == |
| **Total** | **1,172,879** | **1080.13** | **47,524** | **878.61** | |

NOTES:

1) National Center for Education Statistics, Integrated Postsecondary Education Data System, Completer's Survey, 1996-97

2) Based on 1997 United States and Florida working age population (age 18-44), U.S. Census

3) Includes degrees in "Agribusiness & Production", "Agricultural Sciences" and "Conservation & Renewable Natural Resources"

4) Includes degrees in "Business Management and Administration" and "Marketing Operations and Distribution."

5) Includes degrees in "Communications" and "Communications Technologies"

6) Includes degrees in "Physical Science" and "Science Technologies"

## Table 13: The Nation v. Florida: Per Capita Master's Degrees Granted by Discipline, 1996-97

| DISCIPLINE | THE NATION | | FLORIDA | | |
|---|---|---|---|---|---|
| | Total Degrees [1] | Per Capita [2] | Total Degrees [1] | Per Capita [2] | *Florida as % of Nation* |
| Agriculture & natural resources [3] | 4,516 | 4.16 | 105 | 1.94 | *47%* |
| Architecture & related programs | 4,034 | 3.71 | 140 | 2.59 | *70%* |
| Area, ethnic & cultural studies | 1,651 | 1.52 | 31 | 0.57 | *38%* |
| Biological/Life Sciences | 6,466 | 5.95 | 207 | 3.83 | *64%* |
| Business [4] | 97,619 | 89.90 | 4,650 | 85.97 | *96%* |
| Communications [5] | 5,601 | 5.16 | 123 | 2.27 | *44%* |
| Computer & information sciences | 10,098 | 9.30 | 348 | 6.43 | *69%* |
| Education | 110,087 | 101.38 | 3,742 | 69.18 | *68%* |
| Engineering | 25,787 | 23.75 | 1,001 | 18.51 | *78%* |
| Engineering-related technologies | 1,040 | 0.96 | 63 | 1.16 | ***122%*** |
| English language & literature/letters | 7,722 | 7.11 | 149 | 2.75 | *39%* |
| Foreign languages & literature | 3,077 | 2.83 | 86 | 1.59 | *56%* |
| Health professions & related sciences | 35,958 | 33.11 | 1,512 | 27.95 | *84%* |
| Home economics & vocational home economics | 2,888 | 2.66 | 106 | 1.96 | *74%* |
| Law & legal studies | 2,886 | 2.66 | 168 | 3.11 | ***117%*** |
| Liberal arts & sciences, general studies & humanities | 2,661 | 2.45 | 57 | 1.05 | *43%* |
| Library science | 4,982 | 4.59 | 277 | 5.12 | ***112%*** |
| Mathematics | 3,783 | 3.48 | 108 | 2.00 | *57%* |
| Multi/interdisciplinary studies | 2,819 | 2.60 | 12 | 0.22 | *9%* |
| Parks, recreation, leisure & fitness studies | 1,966 | 1.81 | 35 | 0.65 | *36%* |
| Philosophy & religion | 1,252 | 1.15 | 17 | 0.31 | *27%* |
| Physical sciences & science technologies [6] | 5,563 | 5.12 | 177 | 3.27 | *64%* |
| Precision production trades | 3 | 0.00 | == | == | == |
| Protective services | 1,845 | 1.70 | 90 | 1.66 | *98%* |
| Psychology | 14,353 | 13.22 | 727 | 13.44 | ***102%*** |
| Public administration | 24,781 | 22.82 | 867 | 16.03 | *70%* |
| ROTC & military technologies | 136 | 0.13 | == | == | == |
| Social sciences & history | 14,787 | 13.62 | 365 | 6.75 | *50%* |
| Theological studies/religious vocations | 4,975 | 4.58 | 29 | 0.54 | *12%* |
| Transportation & material moving workers | 919 | 0.85 | 837 | 15.47 | ***1828%*** |
| Visual & performing arts | 10,627 | 9.79 | 238 | 4.40 | *45%* |
| Not classified by field of study | 4,519 | 4.16 | == | == | == |
| **Total** | 419,401 | 386.24 | 16,267 | 300.74 | |

NOTES:

1) National Center for Education Statistics, Integrated Postsecondary Education Data System, Completer's Survey, 1996-97

2) Based on 1997 United States and Florida working age population (age 18-44), U.S. Census

3) Includes degrees in "Agribusiness & Production", "Agricultural Sciences" and "Conservation & Renewable Natural Resources"

4) Includes degrees in "Business Management and Administration" and "Marketing Operations and Distribution."

5) Includes degrees in "Communications" and "Communications Technologies"

6) Includes degrees in "Physical Science" and "Science Technologies"

**Table 14: The Nation v. Florida: Per Capita Doctoral Degrees Granted by Discipline, 1996-97**

| DISCIPLINE | THE NATION | | FLORIDA | | |
|---|---|---|---|---|---|
| | Total Degrees [1] | Per Capita [2] | Total Degrees [1] | Per Capita [2] | *Florida as % of Nation* |
| Agriculture & natural resources [3] | 1,217 | 1.12 | 52 | 0.96 | ***86%*** |
| Architecture & related programs | 135 | 0.12 | 2 | 0.04 | ***30%*** |
| Area, ethnic & cultural studies | 182 | 0.17 | == | == | **==** |
| Biological/Life Sciences | 4,812 | 4.43 | 66 | 1.22 | ***28%*** |
| Business [4] | 1,336 | 1.23 | 108 | 2.00 | ***162%*** |
| Communications [5] | 300 | 0.28 | 16 | 0.30 | ***107%*** |
| Computer & information sciences | 857 | 0.79 | 50 | 0.92 | ***117%*** |
| Education | 6,751 | 6.22 | 582 | 10.76 | ***173%*** |
| Engineering | 6,201 | 5.71 | 192 | 3.55 | ***62%*** |
| Engineering-related technologies | 9 | 0.01 | == | == | **==** |
| English language & literature/letters | 1,575 | 1.45 | 54 | 1.00 | ***69%*** |
| Foreign languages & literature | 915 | 0.84 | 19 | 0.35 | ***42%*** |
| Health professions & related sciences | 2,672 | 2.46 | 91 | 1.68 | ***68%*** |
| Home economics & vocational home economics | 382 | 0.35 | 128 | 2.37 | ***673%*** |
| Law & legal studies | 81 | 0.07 | == | == | **==** |
| Liberal arts & sciences, general studies & humanities | 77 | 0.07 | 9 | 0.17 | ***235%*** |
| Library science | 46 | 0.04 | 7 | 0.13 | ***305%*** |
| Mathematics | 1,174 | 1.08 | 28 | 0.52 | ***48%*** |
| Multi/interdisciplinary studies | 451 | 0.42 | 1 | 0.02 | ***4%*** |
| Parks, recreation, leisure & fitness studies | 108 | 0.10 | 6 | 0.11 | ***112%*** |
| Philosophy & religion | 593 | 0.55 | 6 | 0.11 | ***20%*** |
| Physical sciences & science technologies [6] | 4,474 | 4.12 | 116 | 2.14 | ***52%*** |
| Protective services | 31 | 0.03 | 2 | 0.04 | ***130%*** |
| Psychology | 4,053 | 3.73 | 194 | 3.59 | ***96%*** |
| Public administration | 518 | 0.48 | 22 | 0.41 | ***85%*** |
| Social sciences & history | 3,989 | 3.67 | 85 | 1.57 | ***43%*** |
| Theological studies/religious vocations | 1,395 | 1.28 | == | == | **==** |
| Visual & performing arts | 1,060 | 0.98 | 31 | 0.57 | ***59%*** |
| Not classified by field of study | 482 | 0.44 | == | == | **==** |
| | 45,876 | 42.25 | 1,867 | 34.52 | |

NOTES:

1) National Center for Education Statistics, Integrated Postsecondary Education Data System, Completer's Survey, 1996-97

2) Based on 1997 United States and Florida working age population (age 18-44), U.S. Census

3) Includes degrees in "Agribusiness & Production", "Agricultural Sciences" and "Conservation & Renewable Natural Resources"

4) Includes degrees in "Business Management and Administration" and "Marketing Operations and Distribution."

5) Includes degrees in "Communications" and "Communications Technologies"

6) Includes degrees in "Physical Science" and "Science Technologies"

Source: ***Digest of Education Statistics*** , National Center for Education Statistics, 1999.

## Table 15: Health Professions - Occupational Demand And Supply

| OCCUPATIONAL TITLE | EMPLOYMENT 1997-2007 CHANGE TOTAL | % | ANNUAL OPENINGS | 1998 WAGE MEAN | ENTRY | Academic Preparation[1] |
|---|---|---|---|---|---|---|
| Medicine and Health Service Manager | 4,314 | 39.96 | 623 | 23.86 | 14.68 | Bachelor's + work experience |
| Medical/Clinical Laboratory Technologist | 2,044 | 22.83 | 318 | 17.73 | 13.44 | Bachelor's |
| Physician Assistant | 2,144 | 44.89 | 294 | 23.27 | 10.05 | Bachelor's |
| Occupational Therapist | 1,891 | 43.22 | 255 | 23.47 | 14.69 | Bachelor's |
| Dietitian and Nutritionist | 725 | 27.16 | 127 | 16.55 | 11.73 | Bachelor's |
| Corrective and Manual Arts Therapist | 36 | 32.14 | 6 | 15.51 | 7.64 | Bachelor's |
| Physical Therapist | 3,532 | 45.60 | 469 | 26.40 | 17.96 | Master's |
| Speech Pathologist, Audiologist | 1,682 | 37.16 | 236 | 22.82 | 14.81 | Master's |
| Nursing Instructor | 432 | 24.15 | 78 | 28.49 | 17.34 | Master's |
| Health Specialties Teacher | 1,221 | 19.79 | 293 | 41.96 | 21.03 | Doctoral |
| Health Diagnostics Teacher | 37 | 25.69 | 8 | N.A. | N.A. | Doctoral |
| Medical Scientist | 380 | 19.77 | 95 | 30.86 | 17.66 | Doctoral |
| | Total Openings | | 2,802 | | | |

## Table 16: Information Technology Professions - Occupational Demand And Supply

| OCCUPATIONAL TITLE | EMPLOYMENT 1997-2007 CHANGE TOTAL | % | ANNUAL OPENINGS | 1998 WAGE MEAN | ENTRY | Academic Preparation[1] |
|---|---|---|---|---|---|---|
| Computer Engineer | 5,778 | 68.63 | 630 | 28.49 | 18.69 | Bachelor's |
| Systems Analyst | 17,963 | 70.07 | 1,955 | 24.25 | 15.42 | Bachelor's |
| Computer Programmer | 7,379 | 29.92 | 1,503 | 23.06 | 15.08 | Bachelor's |
| All Other Computer Scientists | 6,242 | 132.53 | 653 | 23.49 | 13.54 | Bachelor's |
| Database Administrator | 1,862 | 50.87 | 246 | 22.54 | 14.47 | Bachelor's |
| Computer Science Teacher | 253 | 20.16 | 60 | 27.29 | 14.81 | Doctoral |
| | Total Openings | | 5,047 | | | |

## Table 17: Science And Engineering - Occupational Demand And Supply

| OCCUPATIONAL TITLE | EMPLOYMENT 1997-2007 CHANGE TOTAL | % | ANNUAL OPENINGS | 1998 WAGE MEAN | ENTRY | Academic Preparation[1] |
|---|---|---|---|---|---|---|
| ENGINEERING/ARCHITECTURE | | | | | | |
| Electrical and Electronic Engineer | 5,149 | 30.38 | 876 | 27.47 | 18.43 | Bachelor's |
| All Other Engineers | 2,975 | 27.23 | 638 | 24.48 | 15.17 | Bachelor's |
| Construction Manager | 1,894 | 12.16 | 462 | 21.49 | 13.10 | Bachelor's |
| Civil Engineer, Including Traffic | 2,710 | 27.31 | 461 | 26.58 | 18.19 | Bachelor's |
| Mechanical Engineer | 303 | 4.74 | 154 | 25.80 | 16.47 | Bachelor's |
| Architect, Exc. Landscape and Marine | 814 | 18.64 | 146 | 23.73 | 15.12 | Bachelor's |
| Industrial Engineer, Exc. Safety | 552 | 13.05 | 115 | 25.17 | 17.38 | Bachelor's |
| Landscape Architect | 696 | 28.06 | 107 | 20.21 | 12.29 | Bachelor's |
| Surveying and Mapping Scientist | 256 | 7.61 | 102 | 18.86 | 10.42 | Bachelor's |
| Chemical Engineer | 153 | 14.50 | 39 | 27.86 | 19.82 | Bachelor's |
| Aeronautical and Astronautical Engineer | -178 | -12.73 | 23 | 26.77 | 19.49 | Bachelor's |
| Safety Engineer, Except Mining | 114 | 13.97 | 23 | 24.71 | 15.37 | Bachelor's |
| Marine Engineer | 68 | 22.52 | 14 | 29.67 | 16.35 | Bachelor's |
| Agricultural Engineer | 50 | 22.42 | 10 | 24.07 | 17.11 | Bachelor's |
| Metallurgist and Related Engineer | -3 | -0.80 | 9 | 27.45 | 19.47 | Bachelor's |
| Nuclear Engineer | 5 | 1.63 | 8 | 32.20 | 28.29 | Bachelor's |
| Mining Engineer, Including Safety | -12 | -17.14 | 2 | 26.98 | 19.79 | Bachelor's |
| Petroleum Engineer | 9 | 33.33 | 2 | 33.69 | 24.30 | Bachelor's |
| Marine Architect | 7 | 21.88 | 2 | 25.31 | 14.89 | Bachelor's |
| Engineering, Science, Comp. Systems Mgr. | 4,068 | 36.20 | 604 | 30.54 | 20.31 | Bachelor's + work experience |
| Engineering Teacher | 468 | 19.76 | 113 | 34.60 | 21.00 | Doctoral |
| | TOTAL OPENINGS | | 3,910 | | | |

## Table 17: Science And Engineering - Occupational Demand And Supply

| OCCUPATIONAL TITLE | EMPLOYMENT 1997-2007 CHANGE TOTAL | % | ANNUAL OPENINGS | 1998 WAGE MEAN | ENTRY | Academic Preparation[1] |
|---|---|---|---|---|---|---|
| ENGINEERING/ARCHITECTURE | | | | | | |
| SCIENCE | | | | | | |
| Chemist | 770 | 31.77 | 131 | 19.07 | 12.34 | Bachelor's |
| Geologist, Geophysicist, Oceanographer | 875 | 59.81 | 126 | 25.40 | 16.99 | Bachelor's |
| All Other Physical Scientists | 445 | 21.62 | 98 | 22.94 | 14.46 | Bachelor's |
| Biological Scientist | 1110 | 26.70 | 198 | 19.36 | 13.16 | Doctoral |
| Life Science Teacher | 332 | 20.82 | 77 | 29.68 | 18.52 | Doctoral |
| All Other Physical Science Teachers | 270 | 19.77 | 65 | 33.77 | 22.99 | Doctoral |
| All Other Life Scientists | 97 | 24.68 | 18 | 17.69 | 12.91 | Doctoral |
| Chemistry Teacher | 62 | 19.68 | 15 | 27.14 | 16.00 | Doctoral |
| Physics Teacher | 42 | 19.91 | 10 | 30.76 | 18.72 | Doctoral |
| Physicist and Astronomer | 6 | 3.19 | 6 | 33.16 | 24.53 | Doctoral |
| | TOTAL OPENINGS | | 744 | | | |

Note: Although computer engineer is provided through engineering schools, the occupation was listed under information technology occupations.

## Table 18: Business/Management Professions - Occupational Demand And Supply

| OCCUPATIONAL TITLE | EMPLOYMENT 1997-2007 CHANGE TOTAL | EMPLOYMENT 1997-2007 CHANGE PERCENT | AVERAGE ANNUAL OPENINGS | 1998 WAGE MEAN | 1998 WAGE ENTRY | Academic Preparation[0] |
|---|---|---|---|---|---|---|
| Accountant and Auditor | 16,750 | 29.97 | 2,539 | 19.64 | 11.23 | Bachelor's |
| All Other Management Support Workers | 10,135 | 28.02 | 1,699 | 15.81 | 9.41 | Bachelor's |
| Insurance Sales Worker | 4,544 | 15.90 | 1,105 | 19.04 | 9.49 | Bachelor's |
| Personnel, Training, Labor Rel. Specialist | 4,996 | 32.84 | 905 | 16.23 | 9.67 | Bachelor's |
| Property and Real Estate Manager | 5,326 | 29.27 | 777 | 18.14 | 9.67 | Bachelor's |
| All Other Financial Specialists | 4,676 | 33.37 | 775 | 17.40 | 10.38 | Bachelor's |
| Securities, Financial Service Sales | 6,149 | 32.05 | 761 | 29.04 | 11.23 | Bachelor's |
| Loan Officer and Counselor | 3,404 | 26.25 | 624 | 17.09 | 9.53 | Bachelor's |
| Purchasing Agent Exc. Whl./Retail/Farm | 1,116 | 13.59 | 324 | 17.10 | 10.90 | Bachelor's |
| Underwriter | 1,342 | 22.86 | 299 | 18.09 | 11.33 | Bachelor's |
| Real Estate Appraiser | 1,343 | 30.48 | 223 | 17.98 | 10.92 | Bachelor's |
| Wholesale, Retail Buyer, Exc. Farm | 839 | 16.92 | 204 | 15.32 | 8.57 | Bachelor's |
| Credit Analyst | 1,216 | 35.25 | 198 | 18.66 | 12.82 | Bachelor's |
| Cost Estimator | 868 | 11.02 | 183 | 18.99 | 11.54 | Bachelor's |
| Employment Interviewer | 944 | 32.45 | 171 | 17.09 | 10.11 | Bachelor's |
| Tax Examiner, Collector, Revenue Agent | 539 | 10.34 | 167 | 16.90 | 11.16 | Bachelor's |
| Claims Examiner, Insurance | 670 | 23.36 | 115 | 19.60 | 12.11 | Bachelor's |
| Budget Analyst | 433 | 14.75 | 107 | 21.24 | 14.88 | Bachelor's |
| Financial Analyst, Statistical | 717 | 32.14 | 107 | 20.36 | 12.95 | Bachelor's |
| Industrial Production Manager | 43 | 0.76 | 104 | 23.86 | 14.29 | Bachelor's |
| Special Agent, Insurance | 445 | 23.85 | 95 | 23.79 | 10.33 | Bachelor's |
| Purchasing Agent and Buyer, Farm | 171 | 15.35 | 46 | 17.19 | 8.86 | Bachelor's |
| Assessor | 229 | 23.42 | 46 | 14.83 | 9.63 | Bachelor's |
| Actuary | 206 | 32.54 | 30 | 32.69 | 17.42 | Bachelor's |
| Farm and Home Management Advisor | 60 | 22.22 | 9 | 14.19 | 8.29 | Bachelor's |
| General Manager and Top Executive | 45,092 | 24.70 | 7,707 | 27.27 | 11.87 | Bachelor's + work experience |
| All Other Managers and Administrators | 26,578 | 23.25 | 4,672 | 22.57 | 12.52 | Bachelor's + work experience |
| Financial Manager | 8,946 | 26.11 | 1,438 | 25.78 | 13.19 | Bachelor's + work experience |
| Administrative Service Manager | 7,947 | 39.12 | 1,151 | 21.53 | 12.04 | Bachelor's + work experience |
| Education Administrator | 5,702 | 25.74 | 1,126 | 24.44 | 13.73 | Bachelor's + work experience |

## Table 18: Business/Management Professions - Occupational Demand And Supply

| OCCUPATIONAL TITLE | EMPLOYMENT 1997-2007 CHANGE TOTAL | EMPLOYMENT 1997-2007 CHANGE PERCENT | AVERAGE ANNUAL OPENINGS | 1998 WAGE MEAN | 1998 WAGE ENTRY | Academic Preparation[0] |
|---|---|---|---|---|---|---|
| Marketing, Adv., Public Relations Manager | 6,949 | 30.68 | 1,010 | 24.18 | 12.37 | Bachelor's + work experience |
| Artist and Commercial Artist | 6,176 | 38.27 | 952 | 14.32 | 8.58 | Bachelor's + work experience |
| Management Analyst | 5,926 | 26.28 | 771 | 22.93 | 15.10 | Bachelor's + work experience |
| Human Resources Manager | 3,764 | 34.99 | 628 | 21.84 | 11.89 | Bachelor's + work experience |
| Medicine and Health Service Manager | 4,314 | 39.96 | 623 | 23.86 | 14.68 | Bachelor's + work experience |
| Engineering, Science, Comp. Systems Manager | 4,068 | 36.20 | 604 | 30.54 | 20.31 | Bachelor's + work experience |
| Communication, Transport., Utility Manager | 2,212 | 24.94 | 376 | 23.67 | 13.06 | Bachelor's + work experience |
| Purchasing Manager | 1,676 | 20.72 | 350 | 19.51 | 10.71 | Bachelor's + work experience |
| Farm Manager | -1,510 | -10.93 | 232 | N.A. | N.A. | Bachelor's + work experience |
| Government Chief Executive and Legislator | 440 | 23.15 | 92 | 23.89 | 7.55 | Bachelor's + work experience |
| Adjudicator and Hearing Officer | -51 | -2.54 | 31 | 17.66 | 13.12 | Bachelor's + work experience |
| Judge and Magistrate | 118 | 14.37 | 25 | 48.51 | 45.50 | Bachelor's + work experience |
| Broadcast News Analyst | 100 | 20.37 | 22 | 29.36 | 10.37 | Bachelor's + work experience |
| Statistician | 172 | 30.77 | 25 | 17.68 | 9.27 | Masters |
| Operations and Research Analyst | 418 | 11.52 | 164 | 22.70 | 13.84 | Master's |
| | | | 33,612 | | | |

NOTES:

1. ***Occupational Outlook Handbook, 2000-01***

## Table 19: Education Professions - Occupational Demand And Supply

| OCCUPATIONAL TITLE | EMPLOYMENT 1997-2007 CHANGE TOTAL | % | ANNUAL OPENINGS | 1998 WAGE MEAN | ENTRY | Academic Preparation[1] |
|---|---|---|---|---|---|---|
| Teacher, Secondary School | 16,175 | 26.78 | 3,561 | 22.79 | 16.02 | Bachelor's |
| Teacher, Elementary | 17,195 | 26.94 | 3,194 | 20.67 | 14.38 | Bachelor's |
| Teacher, Preschool and Kindergarten | 9,909 | 32.96 | 1,631 | 7.96 | 5.91 | Bachelor's |
| Teacher, Special Education | 5,065 | 26.92 | 666 | 22.70 | 15.81 | Bachelor's |
| All Other Teachers, Instructors | 4,113 | 32.48 | 544 | 18.40 | 9.76 | Bachelor's |
| Graduate Assistant, Teaching | 119 | 20.91 | 28 | 11.77 | 7.13 | Bachelor's |
| Lecturer | 187 | 57.36 | 25 | 18.01 | 10.78 | Bachelor's |
| Education Administrator | 5,702 | 25.74 | 1,126 | 24.44 | 13.73 | Bachelor's + work experience |
| All Other Post Secondary Teachers | 920 | 19.87 | 220 | 29.25 | 18.62 | Doctoral |
| Education Teacher | 446 | 19.78 | 108 | 30.58 | 16.70 | Doctoral |
| | Total Openings | | 11,103 | | | |

**Table 20: Florida's Undergraduate Medical Degree Production (Per Capita)**

| STATE | 1997 18-44 Population (thousands)[1] | 1996-97 Medical Degrees, Public & Private Insts.[2] | Medical Degrees per 100K 18-44 Population | Rank |
|---|---|---|---|---|
| District of Columbia | 236 | 440 | 186 | 1 |
| Vermont | 241 | 90 | 37 | 2 |
| Nebraska | 646 | 232 | 36 | 3 |
| Missouri | 2,125 | 737 | 35 | 4 |
| Iowa | 1,091 | 370 | 34 | 5 |
| Pennsylvania | 4,656 | 1,356 | 29 | 6 |
| West Virginia | 695 | 190 | 27 | 7 |
| Illinois | 4,809 | 1,165 | 24 | 8 |
| Louisiana | 1,762 | 423 | 24 | 9 |
| North Dakota | 253 | 59 | 23 | 10 |
| Massachusetts | 2,542 | 590 | 23 | 11 |
| New York | 7,294 | 1,685 | 23 | 12 |
| Rhode Island | 403 | 88 | 22 | 13 |
| Ohio | 4,478 | 918 | 21 | 14 |
| Maryland | 2,165 | 439 | 20 | 15 |
| Oklahoma | 1,279 | 231 | 18 | 16 |
| Tennessee | 2,182 | 382 | 18 | 17 |
| Michigan | 3,997 | 697 | 17 | 18 |
| South Dakota | 286 | 47 | 16 | 19 |
| Kansas | 1,031 | 166 | 16 | 20 |
| Maine | 498 | 79 | 16 | 21 |
| Texas | 8,063 | 1,192 | 15 | 22 |
| Wisconsin | 2,068 | 305 | 15 | 23 |
| North Carolina | 3,044 | 442 | 15 | 24 |
| Virginia | 2,901 | 416 | 14 | 25 |
| Kentucky | 1,595 | 228 | 14 | 26 |
| Minnesota | 1,903 | 262 | 14 | 27 |
| Connecticut | 1,310 | 179 | 14 | 28 |
| South Carolina | 1,547 | 209 | 14 | 29 |
| Alabama | 1,750 | 229 | 13 | 30 |
| Arkansas | 957 | 123 | 13 | 31 |
| New Hampshire | 499 | 60 | 12 | 32 |
| New Jersey | 3,222 | 380 | 12 | 33 |
| Utah | 854 | 98 | 11 | 34 |
| Hawaii | 477 | 54 | 11 | 35 |
| Georgia | 3,232 | 359 | 11 | 36 |
| Indiana | 2,389 | 258 | 11 | 37 |
| New Mexico | 680 | 67 | 10 | 38 |
| **Florida** | **5,409** | **458** | **8** | **39** |
| Mississippi | 1,095 | 90 | 8 | 40 |
| California | 13,707 | 1,120 | 8 | 41 |
| Colorado | 1,611 | 127 | 8 | 42 |
| Nevada | 674 | 47 | 7 | 43 |
| Washington | 2,324 | 150 | 6 | 44 |
| Oregon | 1,272 | 82 | 6 | 45 |
| Arizona | 1,777 | 86 | 5 | 46 |
| Alaska | 261 | - | - | 47 |
| Delaware | 309 | - | - | 47 |
| Idaho | 473 | - | - | 47 |
| Montana | 329 | - | - | 47 |
| Wyoming | 186 | - | - | 47 |
| **U.S.** | **108,587** | **17,176** | **16** | |

Notes:

(1) ***1998 Statistical Abstract.*** U.S. Census Bureau.

(2) National Center for Education Statistics, Integrated Postsecondary Education Data Systems, Completers Survey

**Table 21: State University System - Information Technology Components and Tracks in Non-Information Technology Programs.**

| Area of Study | Program, Track or Component | Universities |
|---|---|---|
| Business | **Business**<br>E-Commerce<br>Decision and Information Sciences<br>Business Information Technology<br>Accounting Information Systems | UF, FSU, FAMU, FAU, UCF, UNF, UWF<br>UF, UWF<br>FAMU<br>UWF, UNF |
| Humanities | **Fine Arts**<br>Digital Media<br>Graphic Design<br>Emphasis in Computer Arts<br>Art with Electronic Media Track<br>Music, Composition Track<br>Theater<br>Film<br>Photography (digital)<br>**Liberal Studies**<br>Modeling and Computer Applications | UF, FSU, FAMU, UNF, UCF, FGCU,UWF<br>UF, UNF, FAU, FAMU<br>FAU<br>UF, UNF, UCF, USF, FSU<br>UF, UNF, FAMU, UCF<br>FAMU, UCF, UF<br>UCF, FSU<br>UF<br><br>UCF |
| Communications | **English**<br>IT Component prepares students to work with technology-related aspects of the field.<br>**Journalism/ Mass Communications**<br>Computer-assisted video editing and online production, editing, and visual communications. Use of digital systems in broadcast journalism. Students learn to gather, analyze, synthesize, evaluate information/entertainment to audiences using a variety of technology-based delivery systems. | FAMU, UCF,UF<br><br>USF, UWF, UCF, FAMU, FIU, UNF, UF, UWF |

Source: Information provided to the Postsecondary Education Planning Commission by the State University System, Office of Academic and Student Affairs.

**Table 21: State University System - Information Technology Components and Tracks in Non-Information Technology Programs, continued.**

| Area of Study | Program, Track or Component | Universities |
|---|---|---|
| Social Studies | **History** | UNF |
| | Use and evaluation of web-based research in course called The Craft of the Historian | FAMU |
| | Use of Geographic Information Systems (GIS) | |
| | **Political Science** | UCF, FAMU |
| | GIS Technology | |
| | **Criminal Justice** | UCF |
| | Crime analysis, crime mapping, web-based courses | |
| | **Psychology** | |
| | Computer uses and human factors | UCF |
| | **Geography** | |
| | Includes technology-based courses, such as Digital Thematic Mapping, Remote Sensing, GIS, Climatology, Meteorology. | USF, FAU, FAMU |

Source: Information provided to the Postsecondary Education Planning Commission by the State University System, Office of Academic and Student Affairs.

**Table 21: State University System - Information Technology Components and Tracks in Non-Information Technology Programs, continued.**

| Area of Study | Program, Track or Component | Universities |
|---|---|---|
| Sciences | **Chemistry**<br>Computer use in database assessment computational methods, commercial software packages for chemistry, and computer imaging and modeling as applied to chemical work. | FAMU, USF, FIU |
| | **Geology**<br>Students learn to use geo-relevant software applications as part of their undergraduate and graduate programs. The Hydrology concentration makes intensive use of GIS and requires knowledge of technical software packages. | USF, UWF, FIU, UCF |
| | **Environmental Science and Policy**<br>Includes technology components such as geographic information Systems (GIS), meteorology, and remote sensing. | UCF, FAMU, UF |
| | **Forensic Science**<br>Computer usage and digital evidence | UCF |
| | **Biology**<br>Modeling and Ecosystems | UCF |
| | **Physics**<br>Computer usage skills in Device Physics, Optics, and Lazers, Computational Physics | UCF |
| | **Mathematics**<br>Computational skills and simulation and analysis | UCF |

Source: Information provided to the Postsecondary Education Planning Commission by the State University System, Office of Academic and Student Affairs.

**Table 21: State University System - Information Technology Components and Tracks in Non-Information Technology Programs, continued.**

| Area of Study | Program, Track or Component | Universities |
|---|---|---|
| Sciences | **Statistics**<br>Computer skills, analytical and data mining skills | UCF |
| Health Professions | **Nursing**<br>Informatics and technology integrated throughout the curriculum at all levels | USF, UNF, UCF, FAMU |
| | **Pharmacy**<br>Automated systems | FAMU |
| | **Physical Therapy**<br>Clinical and Laboratory courses require extensive use of computerized equipment and applicable software | FIU |
| | **Dietetics and Nutrition**<br>Students required to use computerized food analysis programs | FIU |
| Graduate and Professional Schools and Colleges | **Engineering**<br>Information technology is an integral part of the discipline. | All university engineering programs |
| | **Architecture**<br>Application of computers to architectural problems | FAMU, FIU |
| | **Law**<br>Cyber law | FSU |
| | **Library and Information Studies**<br>Information policy, records management, information processing and organization, systems administration and management | FSU |
| | **Public Administration**<br>Public information management, including public information systems | FAMU |
| | Computer applications for Urban Services | FIU |

Source: Information provided to the Postsecondary Education Planning Commission by the State University System, Office of Academic and Student Affairs.

**Table 22: Florida's Law Degree Production (Per Capita)**

| STATE | 1997 18-44 Population (thousands)[1] | 1996-97 Law Degrees, Public & Private Insts.[2] | Law Degrees per 100K 18-44 Population | Rank |
|---|---|---|---|---|
| District of Columbia | 236 | 1,946 | 825 | 1 |
| Delaware | 309 | 368 | 119 | 2 |
| Massachusetts | 2,542 | 2,419 | 95 | 3 |
| New York | 7,294 | 4,274 | 59 | 4 |
| Connecticut | 1,310 | 658 | 50 | 5 |
| Louisiana | 1,762 | 815 | 46 | 6 |
| Nebraska | 646 | 293 | 45 | 7 |
| Oregon | 1,272 | 542 | 43 | 8 |
| Illinois | 4,809 | 2,011 | 42 | 9 |
| Minnesota | 1,903 | 754 | 40 | 10 |
| Virginia | 2,901 | 1,121 | 39 | 11 |
| Ohio | 4,478 | 1,656 | 37 | 12 |
| Wyoming | 186 | 68 | 37 | 13 |
| Rhode Island | 403 | 147 | 36 | 14 |
| Pennsylvania | 4,656 | 1,660 | 36 | 15 |
| Iowa | 1,091 | 388 | 36 | 16 |
| Michigan | 3,997 | 1,420 | 36 | 17 |
| California | 13,707 | 4,839 | 35 | 18 |
| Utah | 854 | 289 | 34 | 19 |
| Missouri | 2,125 | 696 | 33 | 20 |
| **Florida** | **5,409** | **1,713** | **32** | **21** |
| Indiana | 2,389 | 753 | 32 | 22 |
| Oklahoma | 1,279 | 403 | 32 | 23 |
| Alabama | 1,750 | 524 | 30 | 24 |
| Colorado | 1,611 | 478 | 30 | 25 |
| North Dakota | 253 | 74 | 29 | 26 |
| Kansas | 1,031 | 292 | 28 | 27 |
| Texas | 8,063 | 2,248 | 28 | 28 |
| New Jersey | 3,222 | 872 | 27 | 29 |
| North Carolina | 3,044 | 810 | 27 | 30 |
| Arkansas | 957 | 253 | 26 | 31 |
| South Dakota | 286 | 75 | 26 | 32 |
| Washington | 2,324 | 607 | 26 | 33 |
| Kentucky | 1,595 | 404 | 25 | 34 |
| Maryland | 2,165 | 548 | 25 | 35 |
| New Hampshire | 499 | 126 | 25 | 36 |
| Georgia | 3,232 | 795 | 25 | 37 |
| Mississippi | 1,095 | 269 | 25 | 38 |
| Montana | 329 | 75 | 23 | 39 |
| Wisconsin | 2,068 | 440 | 21 | 40 |
| Tennessee | 2,182 | 456 | 21 | 41 |
| Idaho | 473 | 95 | 20 | 42 |
| West Virginia | 695 | 138 | 20 | 43 |
| Maine | 498 | 91 | 18 | 44 |
| Arizona | 1,777 | 280 | 16 | 45 |
| Hawaii | 477 | 75 | 16 | 46 |
| New Mexico | 680 | 105 | 15 | 47 |
| South Carolina | 1,547 | 234 | 15 | 48 |
| Alaska | 261 | - | - | 49 |
| Nevada | 674 | | - | 49 |
| Vermont | 241 | - | - | 49 |
| **U.S.** | **108,587** | **39,597** | **36** | |

Notes:

(1) ***1998 Statistical Abstract.*** U.S. Census Bureau.

(2) National Center for Education Statistics, Integrated Postsecondary Education Data Systems, Completers Survey