

Methodology for Updating Programs of Strategic Emphasis in the State University System of Florida, Board of Governors CIP 2020 Update

July 2020

The Programs of Strategic Emphasis (PSE) exist as one of several tools for aligning the degree production goals of the State University System with the economic and workforce needs of Florida. Also, the Programs of Strategic Emphasis is a component in Performance Based Funding. This methodology document explains the steps taken in recommending updates to the Programs of Strategic Emphasis based on the changes to the CIP taxonomy that took effect in 2020.¹

The [methodology approved by the Board of Governors at its October 2019](#) meeting serves as the over-arching foundation for this analysis. The guidelines and methods described in that document are fundamental to the recommendations included in this update.

The methodology used to evaluate the CIP 2020 changes and make the recommendations was as follows.

1. An analysis was conducted of the [CIP 2010 to CIP 2020 crosswalk](#) to determine what changes were made to the taxonomy.
2. Utilizing the above analysis, the programs were grouped and filtered based on the action taken with a focus on those programs that were deleted, moved, or added.
 - a. For any deleted programs, a review was carried out to determine if any programs should be recommended for removal from the list.
 - b. For any moved programs, if a program was previously designated as a PSE, it was recommended that the new program also be designated as a PSE.
 - c. For any new programs,
 - i. The prior methodology referenced above was applied to determine which new programs, if any, should be automatically recommended for inclusion.

¹ The [Classification of Instructional Programs \(CIP\)](#) is a taxonomic coding scheme of instructional programs. Its purpose is to facilitate the organization, collection, and reporting of fields of study and program completions. The CIP was originally developed in 1980 by the [National Center for Education Statistics \(NCES\)](#) in the U.S. Department of Education, with revisions occurring in 1985, 1990, 2000, and 2010. [The 2020 edition of the CIP \(CIP-2020\)](#) is the sixth version of the CIP and presents an updated taxonomy of instructional program classifications and descriptions.

- ii. All other new programs were evaluated individually based on their titles and definitions to determine whether they should be recommended for inclusion.
3. A separate analysis was carried out for the Gap Analysis category utilizing the most recently approved [Gap Analysis methodology](#) and the new [CIP 2020 to SOC 2018 crosswalk](#).
4. The results were synthesized to provide the resulting recommendations.

The academic degree programs associated with the proposed changes are identified with **yellow highlighting** in Appendix A. An expanded list of all available programs for those targeted at the two- and four-digit CIP code level can be accessed online via the [NCES CIP](#) website. It should be noted that not all of the CIP codes found in the online expanded list represent programs currently offered in the State University System (SUS), but having a complete list allows for new degree programs to be appropriately categorized when they are added to the State University System Academic Degree Program Inventory.

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APPENDIX A: Proposed Programs of Strategic Emphasis for the State University System of Florida, Board of Governors CIP 2020 Update

About CIPs

The Classification of Instructional Programs (CIP) provides a taxonomic scheme that supports the accurate tracking and reporting of fields of study and program completions activity. CIP was originally developed by the U.S. Department of Education's National Center for Education Statistics (NCES) in 1980, with revisions occurring periodically since that time as new programs emerged and existing program curriculums evolved.

The CIP taxonomy is organized on three levels:

1. The two-digit series, representing the most general groupings of related educational programs (e.g., 14. Engineering)
2. The four-digit series, representing intermediate groupings of educational programs that have comparable content and objectives (e.g., 14.08 Civil Engineering)
3. The six-digit series, representing specific instructional programs with very similar content and objectives (e.g., 14.0803 Structural Engineering as a subset of Civil)

Postsecondary educational institutions use six-digit CIP codes when completing the IPEDS Completions Survey required for participation in federal financial aid programs. Six-digit codes are the most detailed program classifications within the CIP and represent the basic unit of analysis used by NCES and institutions in tracking and reporting program completions and fields of study data.

Source: [NCES, *Integrated Postsecondary Education Data System \(IPEDS\), online manual.*](#)

Proposed Categories for Programs of Strategic Emphasis with Associated CIP

1. Critical Workforce – Education

The Education category is largely based upon the Florida State Board of Education list of critical teacher shortage areas which is published annually. This list can change from year to year but typically remains the same with only one or two additions/deletions. It is also important to consider the critical shortage list within the broader context of the workforce demand for teachers in all specialties, and, for this reason, all teacher education programs were included in the original targeted list associated with the SUS 2005-2013 strategic plan.

It is proposed that the updated program list include all the programs related to teacher preparation and student counseling at the K-12 level. The overall approach will allow for targeting academic programs at the 4-digit CIP code level and eliminate any need for annual updates to the category due to changes in the state board list or programmatic reorganizations at the universities.

EDUCATION CIP CODES:

- 13.0301 Curriculum and Instruction
- 13.10 Special Education and Teaching (all)
- 13.11 Student Counseling and Personnel Services (all)
- 13.12 Teacher Education and Professional Development, Specific Levels and Methods (all)
 - 13.1211 Online Educator/Online Teaching (new)
 - 13.1212 International Teaching and Learning (new)
 - 13.1213 Science, Technology, Engineering, and Mathematics (STEM) Educational Methods (new)
 - 13.1214 College/Postsecondary/University Teaching (new)
- 13.13 Teacher Education and Professional Development, Specific Subject Areas (all)
 - 13.1339 Teacher Education and Professional Development, Specific Subject Areas, Other (new)
- 13.14 Teaching English or French as a Second or Foreign Language (all)
- 42.2805 School Psychology

2. Critical Workforce - Healthcare

The Healthcare category is based primarily on workforce projections by the Florida Department of Economic Opportunity. These organizations have identified the healthcare professions that exist as critical shortage areas in Florida. Also, a shortage of nursing faculty is frequently cited as a critical need occupation because of the direct impact on registered nurse education programs.

There are several health-related technology and data management programs that have emerged in recent years as high-demand and high-wage occupations. Also, there is a consensus that Florida will need to expand its healthcare workforce in all related occupations as the population continues to grow and the state experiences a demographic transition as the Baby Boom Generation retires.

It is proposed that this category include all health-related degree programs (not just healthcare practitioners) under the 51 CIP Code along with selected programs that may exist under other two-digit CIP families.

HEALTHCARE CIP CODES:

- 30.1101 Gerontology
- 30.3701 Design for Human Health (new)
- 51 Health Professions and Related Programs (all)
 - 51.0512 Digital Dentistry (new)
 - 51.0513 Geriatric Dentistry (new)
 - 51.0514 Implantology/Implant Dentistry (new)
 - 51.0720 Regulatory Science/Affairs (new)
 - 51.0721 Disease Registry Data Management (new)
 - 51.0722 Healthcare Innovation (new)

- 51.0723 Healthcare Information Privacy Assurance and Security (new)
- 51.0921 Hyperbaric Medicine Technology/Technician (new)
- 51.0922 Intraoperative Neuromonitoring Technology/Technician (new)
- 51.0923 Orthopedic Technology/Technician (new)
- 51.1110 Pre-Art Therapy (new)
- 51.1111 Pre-Physician Assistant (new)
- 51.1202 Osteopathic Medicine/Osteopathy (moved from 51.1901)
- 51.1203 Podiatric Medicine/Podiatry (moved from 51.2101)
- 51.1299 Medicine, Other (new)
- 51.1402 Clinical and Translational Science (new)
- 51.1403 Pain Management (new)
- 51.1404 Temporomandibular Disorders and Orofacial Pain (new)
- 51.1405 Tropical Medicine (new)
- 51.1499 Medical Clinical Sciences/Graduate Medical Studies, Other (new)
- 51.1510 Infant/Toddler Mental Health Services (new)
- 51.1511 Medical Family Therapy/Therapist (new)
- 51.1512 Hospice and Palliative Care (new)
- 51.1513 Trauma Counseling (new)
- 51.2213 Patient Safety and Healthcare Quality (new)
- 51.2214 Public Health Genetics (new)
- 51.2300 Rehabilitation and Therapeutic Professions, General (new)
- 51.2315 Drama Therapy/Therapist (new)
- 51.2316 Horticulture Therapy/Therapist (new)
- 51.2317 Play Therapy/Therapist (new)
- 51.2605 Physical Therapy Technician/Aide (new)
- 51.3202 Health Professions Education (new)
- 51.3203 Nursing Education (moved from 51.3817)
- 51.3204 Medical/Health Humanities (new)
- 51.3205 History of Medicine (new)
- 51.3206 Arts in Medicine/Health (new)
- 51.3299 Health Professions Education, Ethics, and Humanities, Other (new)
- 51.3824 Forensic Nursing (new)

3. Economic Development - Global Competitiveness

The Global Competitiveness category represents more of an over-arching concept found in the various reports reviewed rather than a specific industry or occupational area. Degree programs that assist in making the SUS globally competitive can be found throughout the system across many disciplines, especially within the sciences, engineering, and information technology programs. However, there are programs that directly support globalization through program graduates and focused research. Some of these programs have an international focus, such as international affairs, international business, international construction, and international law. Area studies and foreign language programs that focus on critical trade partners or foreign competitors also fall under the broad umbrella of increasing globalization.

It is proposed that this category include only programs for which a strong case has been made for enhancing Florida's global competitiveness.

GLOBAL COMPETITIVENESS CIP CODES:

- 05.0103 Asian Studies/Civilization
- 05.0107 Latin American Studies
- 05.0134 Latin American and Caribbean Studies
- 05.0201 African American/Black Studies
- 13.0701 International and Comparative Education
- 16.0101 Foreign Languages and Literatures, General
- 16.0102 Linguistics
- 16.0399 East Asian Languages, Literatures, and Linguistics, Other
- 16.0904 Portuguese Language and Literature
- 16.0905 Spanish Language and Literature
- 16.1701 English as a Second Language (new)
- 22.0210 International Business, Trade, and Tax Law
- 30.2001 International/Global Studies
- 30.4001 Economics and Foreign Language/Literature (new)
- 45.0901 International Relations and Affairs
- 52.1101 International Business/Trade/Commerce
- 52.1502 International Real Estate - CIP assigned by BOG staff (does not exist in NCES)

4. Economic Development – STEM

STEM is a critical category in that it emphasizes the importance of science, technology, engineering, and mathematics programs to Florida's economy. Active STEM lists were researched to identify those that are used nationally to determine whether a program qualifies as STEM. Four such lists were selected as primary references to determine programs eligible to be added to the STEM PSE list, including those produced and published by the Florida Department of Economic Opportunity, the Department of Homeland Security, the National Science Foundation, and the Washington State Education Research and Data Center. Under the typical methodology, programs needed to appear on at least two of these four lists to be considered for addition to the STEM PSE list. However, since these national lists were not yet updated with the CIP 2020 changes at the time of this analysis, staff instead reviewed each new program individually to determine STEM suitability for new CIP 2020 programs.

Many of the STEM academic programs can be targeted at the two-digit CIP level, and others can be targeted at the four- or six-digit level. However, there are STEM-related degrees at the four- and six-digit CIP level embedded in disciplines that are not generally associated with science, technology, engineering, and math such as education and management. These have also been included in the list of STEM CIP codes.

STEM CIP CODES:

- 01.0100 Agriculture, General
- 01.0308 Agroecology and Sustainable Agriculture
- 01.09 Animal Sciences
- 01.10 Food Science and Technology
- 01.11 Plant Sciences
- 01.12 Soil Sciences
- 01.1302 Pre-Veterinary Studies (moved from 51)
- 01.1399 Agriculture/Veterinary Preparatory Programs, Other (new)
- 01.8 Veterinary Medicine (moved from 51)
 - 1.8001 Veterinary Medicine (moved from 51)
 - 1.8100 Veterinary Biomedical and Clinical Sciences (moved from 51)
 - 1.8101 Veterinary Sciences/Veterinary Clinical Sciences, General (moved from 51)
 - 1.8105 Veterinary Anatomy (moved from 51)
 - 1.8109 Veterinary Physiology (moved from 51)
 - 1.8107 Veterinary Microbiology and Immunobiology (moved from 51)
 - 1.8108 Veterinary Pathology and Pathobiology (moved from 51)
 - 1.8111 Veterinary Toxicology and Pharmacology (moved from 51)
 - 1.8103 Large Animal/Food Animal and Equine Surgery and Medicine (moved from 51)
 - 1.8104 Small/Companion Animal Surgery and Medicine (moved from 51)
 - 1.8102 Comparative and Laboratory Animal Medicine (moved from 51)
 - 1.8110 Veterinary Preventive Medicine, Epidemiology, and Public Health (moved from 51)
 - 1.8106 Veterinary Infectious Diseases (moved from 51)
 - 1.8199 Veterinary Biomedical and Clinical Sciences, Other (moved from 51)
 - 1.8301 Veterinary/Animal Health Technology/Technician and Veterinary Assistant (moved from 51)
 - 01.8399 Veterinary/Animal Health Technologies/Technicians, Other (new)
- 01.9999 Agriculture, Agriculture Operations, and Related Sciences, Other
- 03 Natural Resources and Conservation (all)
 - 03.0209 Energy and Environmental Policy (new)
 - 03.0210 Bioenergy (new)
- 04.0201 Architecture
- 04.0202 Architectural Design (new)
- 04.0299 Architecture, Other (new)
- 04.0401 Environmental Design/Architecture
- 04.0402 Healthcare Environment Design/Architecture (new)
- 04.0403 Sustainable Design/Architecture (new)
- 04.0499 Environmental Design, Other (new)
- 04.0601 Landscape Architecture
- 04.0902 Architectural and Building Sciences/Technology
- 04.0999 Architectural Sciences and Technology, Other
- 09.0702 Digital Communication and Media/Multimedia
- 11 Computer and Information Sciences and Support Services (all)
 - 11.0105 Human-Centered Technology Design (new)
 - 11.0204 Computer Game Programming (new)

- 11.0205 Computer Programming, Specific Platforms (new)
 - 11.0902 Cloud Computing (new)
 - 11.0999 Computer Systems Networking and Telecommunications, Other (new)
- 13.0501 Educational/Instructional Technology
- 13.0608 Institutional Research (new)
- 14 Engineering (all)
 - 14.0103 Applied Engineering (new)
 - 14.0202 Astronautical Engineering (new)
 - 14.0299 Aerospace, Aeronautical, and Astronautical/Space Engineering, Other (new)
 - 14.4701 Electrical and Computer Engineering (new)
 - 14.4801 Energy Systems Engineering, General (new)
 - 14.4802 Power Plant Engineering (new)
 - 14.4899 Energy Systems Engineering, Other (new)
- 15 Engineering Technologies and Engineering-Related Fields (all)
 - 15.0001 Applied Engineering Technologies/Technicians (new)
 - 15.0307 Audio Engineering Technology/Technician (new)
 - 15.0407 Mechatronics, Robotics, and Automation Engineering Technology/Technician (new)
 - 15.0617 Composite Materials Technology/Technician (new)
 - 15.0705 Process Safety Technology/Technician (new)
 - 15.0806 Marine Engineering Technology/Technician (new)
 - 15.0807 Motorsports Engineering Technology/Technician (new)
 - 15.1307 3-D Modeling and Design Technology/Technician (new)
 - 15.1701 Energy Systems Technology/Technician (moved from 15.0503)
 - 15.1702 Power Plant Technology/Technician (new)
 - 15.1703 Solar Energy Technology/Technician (moved from 15.0505)
 - 15.1704 Wind Energy Technology/Technician (new)
 - 15.1705 Hydroelectric Energy Technology/Technician (new)
 - 15.1706 Geothermal Energy Technology/Technician (new)
 - 15.1799 Energy Systems Technologies/Technicians, Other (new)
- 26 Biological and Biomedical Sciences (all)
 - 26.0509 Infectious Disease and Global Health (new)
 - 26.0913 Biomechanics (new)
 - 26.1311 Epidemiology and Biostatistics (new)
- 27 Mathematics and Statistics (all)
 - 27.0601 Applied Statistics, General (new)
- 29.0207 Cyber/Electronic Operations and Warfare
- 29.0601 Military Technology and Applied Sciences Management (new)
- 30.01 Biological and Physical Sciences
- 30.06 Systems Science and Theory
- 30.08 Mathematics and Computer Science
- 30.10 Biopsychology
- 30.15 Science, Technology and Society
- 30.16 Accounting and Computer Science
- 30.17 Behavioral Sciences
- 30.18 Natural Sciences

- 30.19 Nutrition Sciences
- 30.25 Cognitive Science
 - 30.2502 Contemplative Studies/Inquiry (new)
 - 30.2599 Cognitive Science, Other (new)
- 30.27 Human Biology
- 30.30 Computational Science
- 30.31 Human Computer Interaction
- 30.32 Marine Sciences
- 30.33 Sustainability Studies
- 30.3501 Climate Science (new)
- 30.3801 Earth Systems Science (new)
- 30.3901 Economics and Computer Science (new)
- 30.4101 Environmental Geosciences (new)
- 30.4201 Geoarchaeology (new)
- 30.4301 Geobiology (new)
- 30.4401 Geography and Environmental Studies (new)
- 30.4801 Linguistics and Computer Science (new)
- 30.4901 Mathematical Economics (new)
- 30.5001 Mathematics and Atmospheric/Oceanic Science (new)
- 30.5202 Digital Humanities (new)
- 30.7001 Data Science, General (new)
- 30.7099 Data Science, Other (new)
- 30.7101 Data Analytics, General (new)
- 30.7103 Data Visualization (new)
- 30.7104 Financial Analytics (new)
- 30.7199 Data Analytics, Other (new)
- 31.0505 Kinesiology and Exercise Science
- 40 Physical Sciences (all)
 - 40.0512 Cheminformatics/Chemistry Informatics (new)
 - 40.1101 Physics and Astronomy (new)
- 42.27 Research and Experimental Psychology
- 43.0303 Critical Infrastructure Protection
- 45.0301 Archeology
- 43.0401 Security Science and Technology, General (new)
- 43.0402 Criminalistics and Criminal Science (moved from 43.0111)
- 43.0403 Cyber/Computer Forensics and Counterterrorism (moved from 43.0116)
- 43.0404 Cybersecurity Defense Strategy/Policy (new)
- 43.0406 Forensic Science and Technology (moved from 43.0106)
- 43.0499 Security Science and Technology, Other (new)
- 45.0603 Econometrics and Quantitative Economics
- 45.0702 Geographic Information Science and Cartography
- 50.0102 Digital Media
- 52.0203 Logistics, Materials, and Supply Chain Management
- 52.1201 Management Information Systems, General
- 52.1301 Management Science
- 52.1302 Business Statistics
- 52.1304 Actuarial Science

- 52.1399 Management Sciences and Quantitative Methods, Other
- 52.1404 Digital Marketing (new)

5. Critical Workforce – Gap Analysis

Gap Analysis is a category that includes degree programs leading to the occupational categories projected to be critically under-supplied in the Board of Governors' analysis of labor market projections and related degree production. Consequently, the academic programs included in this category correspond to Florida's high-need, high-wage occupational areas identified through the gap analysis. A comprehensive methodology for conducting the gap analysis is available on the Board of Governors' website. The results from the most recent gap analysis were used, combined with the new CIP 2020 to SOC 2018 crosswalk, to identify programs that should be added to this category.

Institutions will still be expected to work with local industries and employers to identify academic programs needed to support local or regional economic development and workforce needs.

This category only includes academic programs identified in the gap analysis that are not included in another category of Programs of Strategic Emphasis (e.g., industrial engineering would be captured under STEM, so it is not necessary to include it under gap analysis).

GAP ANALYSIS CIP CODES:

- 04.1001 Real Estate Development
- 09.0101 Speech Communication and Rhetoric
- 09.0900 Public Relations, Advertising, and Applied Communication
- 09.0902 Public Relations/Image Management
- 09.0905 Health Communication
- 19.0203 Consumer Merchandising/Retailing Management
- 42.2804 Industrial and Organizational Psychology (crosswalk)
- 43.0121 Suspension and Debarment Investigation
- 43.0405 Financial Forensics and Fraud Investigation (moved from 43.0117)
- 45.0602 Applied Economics
- 50.0401 Design and Visual Communications, General
- 50.0402 Commercial and Advertising Art
- 50.0404 Industrial and Product Design
- 50.0409 Graphic Design
- 50.0411 Game and Interactive Media Design
- 50.0702 Fine/Studio Arts, General
- 50.0705 Drawing
- 50.0706 Intermedia/Multimedia
- 50.0708 Painting
- 52.0205 Operations Management and Supervision
- 52.0215 Risk Management (new)

- 52.0301 Accounting
- 52.0303 Auditing
- 52.0304 Accounting and Finance
- 52.0305 Accounting and Business/Management
- 52.0801 Finance, General
- 52.0804 Financial Planning and Services
- 52.0806 International Finance
- 52.0807 Investments and Securities
- 52.0808 Public Finance
- 52.0809 Credit Management
- 52.0810 Financial Risk Management (new)
- 52.1001 Human Resources Management/Personnel Administration, General
- 52.1003 Organizational Behavior Studies
- 52.1401 Marketing/Marketing Management, General
- 52.1402 Marketing Research
- 52.1403 International Marketing
- 52.1501 Real Estate
- 52.1601 Taxation
- 52.1701 Insurance
- 52.1905 Tourism and Travel Services Marketing Operations (crosswalk)
- 52.1906 Tourism Promotion Operations (crosswalk)
- 52.1908 Business and Personal/Financial Services Marketing Operations (crosswalk)
- 52.1909 Special Products Marketing Operations (crosswalk)
- 52.1910 Hospitality and Recreation Marketing Operations (crosswalk)