

ILLINOIS INNOVATION INDEX

2018 Talent Index: Methodology

Part I: Supply—STEM graduates

The source of all data on STEM degree completions comes from the National Center for Education Statistics (NCES) *Completions Survey*. Data for years 2008-15 were finalized data obtained via the NSF WebCASPAR data portal. Data for 2016-17 were accessed via the Integrated Postsecondary Education Data System (IPEDS) portal.¹ To ensure compatibility between the 2017 data and historical data, the analysis was limited to the following universe of institutions: Title IV institutions, NCES institutions, degree-granting institutions only, first major only, geographic scope limited to US states and the District of Columbia only (excludes territories).

For the 2018 Talent Index, the definition of STEM used in the supply-side analysis has been updated to align with the [National Science Foundation's definition of STEM degrees](#). To define STEM, the *Index* relies on the NCES Classification of Instructional Programs (CIP) codes at the four-digit level. The CIP codes included in the definition of STEM for the supply-side analysis are listed in Table 1.

Table 1: STEM Degree CIP Codes

CIP	Subject area	Four-digit codes included in <i>Index</i> STEM definition
1	Agricultural sciences	01.09, 01.10, 01.11, 01.12, 01.99
3	Natural Resources	All
4	Architecture	04.02, 04.04, 04.09
11	Computer Sciences	11.01, 11.02, 11.04, 11.07, 11.08
14	Engineering	All
15	Engineering Technologies	15.00, 15.10, 15.11, 15.15, 15.16
26	Biological Sciences	26.01, 26.02, 26.03, 26.04, 26.05, 26.07, 26.08, 26.09, 26.11, 26.12, 26.13, 26.15, 26.99
27	Mathematical Sciences	All
40	Physical Sciences	All
52	Business and Management	52.13

¹ IPEDS data is released in three stages: provisional, preliminary, and finalized data. For more information on the considerations attached to each data phase please see [here](#). Provisional and finalized *Completions Survey* data are accessible via the IPEDS and WebCASPAR data portals. Preliminary data for the latest year of data (2017) is only accessible via the [IPEDS data portal](#).

Part II: Demand—STEM employment

Occupational classification

The Standard Occupational Classification Policy Committee, consisting of representatives from nine federal agencies, convened throughout 2011 at the request of the Office of Management and Budget to create guidelines for the classification of STEM workers. The final recommendations are available online at https://www.bls.gov/soc/Attachment_C_STEM.pdf.

In previous years, demand-side analysis of the talent issue has featured both STEM and STEM-Related occupations, as defined by the U.S. Bureau of Labor Statistics. However, to better align with the new Index definition of STEM degrees, demand-side analysis in this issue excludes STEM-Related occupations, which are primarily in health fields.

Occupations included in the Index STEM definition are as follows:

Table 2: List of *Index* STEM occupations

Occupation	STEM Designation	SOC Code
Computer and information systems managers	STEM	11-3021
Architectural and engineering managers	STEM	11-9041
Natural sciences managers	STEM	11-9121
Computer and information research scientists	STEM	15-1111
Computer systems analysts	STEM	15-1121
Information security analysts	STEM	15-1122
Computer programmers	STEM	15-1131
Web developers	STEM	15-1134
Software developers, applications and systems software	STEM	15-113X
Database administrators	STEM	15-1141
Network and computer systems administrators	STEM	15-1142
Computer network architects	STEM	15-1143
Computer support specialists	STEM	15-1150
Computer occupations, all other	STEM	15-1199
Actuaries	STEM	15-2011
Mathematicians	STEM	15-2021
Operations research analysts	STEM	15-2031
Statisticians	STEM	15-2041
Miscellaneous mathematical science occupations	STEM	15-2090
Surveyors, cartographers, and photogrammetrists	STEM	17-1020
Aerospace engineers	STEM	17-2011
Agricultural engineers	STEM	17-2021
Biomedical engineers	STEM	17-2031
Chemical engineers	STEM	17-2041
Civil engineers	STEM	17-2051
Computer hardware engineers	STEM	17-2061
Electrical and electronics engineers	STEM	17-2070
Environmental engineers	STEM	17-2081
Industrial engineers, including health and safety	STEM	17-2110
Marine engineers and naval architects	STEM	17-2121

Materials engineers	STEM	17-2131
Mechanical engineers	STEM	17-2141
Mining and geological engineers, including mining safety engineers	STEM	17-2151
Nuclear engineers	STEM	17-2161
Petroleum engineers	STEM	17-2171
Engineers, all other	STEM	17-2199
Drafters	STEM	17-3010
Engineering technicians, except drafters	STEM	17-3020
Surveying and mapping technicians	STEM	17-3031
Agricultural and food scientists	STEM	19-1010
Biological scientists	STEM	19-1020
Conservation scientists and foresters	STEM	19-1030
Medical scientists	STEM	19-1040
Life scientists, all other	STEM	19-1099
Astronomers and physicists	STEM	19-2010
Atmospheric and space scientists	STEM	19-2021
Chemists and materials scientists	STEM	19-2030
Environmental scientists and geoscientists	STEM	19-2040
Physical scientists, all other	STEM	19-2099
Economists	STEM	19-3011
Survey researchers	STEM	19-3022
Psychologists	STEM	19-3030
Sociologists	STEM	19-3041
Urban and regional planners	STEM	19-3051
Miscellaneous social scientists and related workers	STEM	19-3090
Agricultural and food science technicians	STEM	19-4011
Biological technicians	STEM	19-4021
Chemical technicians	STEM	19-4031
Geological and petroleum technicians	STEM	19-4041
Nuclear technicians	STEM	19-4051
Social science research assistants	STEM	19-4061
Miscellaneous life, physical, and social science technicians	STEM	19-4090
Sales engineers	STEM	41-9031