Student Diversity in STEMM

Data-driven Recognition of Higher Education Institutions Efforts

07.29.2024

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Strategic Higher Ed
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Executive Summary

The purpose of this report is to conduct a comprehensive examination of the potential for implementing a data-driven diversity recognition program at Great Minds in STEM (GMiS). This involves a detailed investigation into the practicality of collecting specific types of data that are crucial for recognizing and enhancing diversity within higher education institutions for Science, Technology, Engineering, Mathematics and Medical (STEMM) programs. The report addresses the three key questions that follow about the potential data to inform a diversity recognition program for higher education institutions.

What types of diversity-related data can be easily captured by a higher education institution?

Race/ethnicity and gender data can be completed readily by institutions as they have to report this data to the US Federal government. In addition, Pell Grant eligibility serves as an indicator of socioeconomic status, reflecting a student's financial need as assessed through the Free Application for Federal Student Aid (FAFSA). This eligibility helps identify students from lower-income backgrounds who may require additional financial support to access higher education opportunities. The alignment with federal data collections ensures a lower reporting burden and increased likelihood of participation.

What are the current benchmarks for retention and completion across different student groups?

The national retention rate for first-time, full-time undergraduate students at 4-year institutions is 68.2%, with completion rates showing significant disparities among demographic groups—Asian students have a 74.8% completion rate, white students 68.5%, and Hispanic, Native American, and Black students between 43% and 50%. The federal data along with field specific data can inform a diversity recognition program.

Who are the potential participants in such a program?

Currently, there are 5,865 institutions offering bachelor's degrees in STEMM fields, providing a broad pool of participants for any recognition program. This extensive pool allows for the development of support by narrowing the focus, either by specific discipline or by region. A phased approach that incorporates continuous feedback can help scale participation effectively.

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Introduction

The pursuit of equity and inclusion in higher education is a cornerstone of fostering a diverse and thriving academic community. Recognizing institutions that excel in supporting underrepresented minorities and students from less privileged socioeconomic backgrounds is crucial in highlighting best practices and inspiring others to follow suit. This report evaluates the likelihood of success for a comprehensive program designed to celebrate and acknowledge higher education institutions that demonstrate high levels of achievement in enrolling, retaining, and graduating underrepresented minorities and Pell Grant recipients.

Currently, the STEMM ecosystem is inequitable, with the majority of STEMM workers in the US being white (69%), followed by Asians (13%), Blacks (9%), and Hispanics (7%)[1]. Despite women making up 50% of the total college-educated workforce, they comprise just 27% of the STEM workforce[2]. Additionally, the demand for skilled workers in STEMM fields is growing rapidly, necessitating a greater effort to attract and retain individuals from diverse backgrounds. Expanding opportunities for underrepresented groups is essential not only for fostering equity but also for meeting the increasing workforce needs in STEMM industries.

Underrepresented minorities and Pell Grant recipients often face unique challenges in accessing and completing higher education. By shining a spotlight on institutions that successfully support these students, we aim to encourage the widespread adoption of effective strategies and practices that enhance educational equity.

This report outlines the criteria and methodology used to identify exemplary institutions, details the benefits of recognition, and presents case studies of schools that have achieved remarkable success. Through rigorous data analysis and comprehensive evaluation, this program seeks to provide a benchmark for institutions striving to improve their inclusivity and support for all students, regardless of their racial, ethnic, or socioeconomic background.

The ultimate goal of this recognition program is to create a more inclusive higher education landscape, where all students have the opportunity to succeed and thrive. By celebrating those institutions that lead the way and identifying the practices and policies that work, we

[1] Diversity in the STEM workforce varies widely, Pew Research: https://www.pewresearch.org/social-trends/2018/01/09/diversity-in-the-stem-workforce-varies-widely-across-jobs/

[2] Women Are Nearly Half of U.S. Workforce but Only 27% of STEM Workers, U.S. Census Bureau (https://www.census.gov/library/stories/2021/01/women-making-gains-in-stem-occupations-but-still-underrepresented.html)

can foster a culture of continuous improvement and shared learning, ensuring that effective strategies are recognized and replicated across the educational spectrum.

Benchmarking Diversity: Enrollment, Retention & Completion

Understanding and improving diversity within undergraduate programs requires a comprehensive approach to analyzing key metrics such as enrollment, retention, and completion. Each of these elements plays a critical role in evaluating the success of higher education institutions in fostering an inclusive environment for all students.

Enrollment refers to the initial admission of students into undergraduate programs. It measures the ability of an institution to attract a diverse student body, considering various demographics such as race, ethnicity, gender, and socioeconomic background. High enrollment numbers among underrepresented groups indicate successful outreach and inclusive admissions practices.

Retention is the measure of students who continue their studies at the institution from one academic year to the next. It is a critical indicator of an institution's ability to support and engage students throughout their educational journey. Effective retention strategies are essential for ensuring that students from diverse backgrounds feel welcomed and are provided with the necessary resources to succeed.

Completion refers to the successful graduation of students from their undergraduate programs. This metric is a testament to an institution's effectiveness in guiding students through to the attainment of their degrees. High completion rates among underrepresented groups reflect the institution's commitment to supporting all students to the finish line.

This section explores some national data relevant to developing benchmarks for these variables. These benchmarks serve as critical reference points that help institutions understand their performance in relation to others and identify effective practices that can be adopted or adapted. For the purposes of a recognition program, there are two standards against which each metric can be compared:

1. **Majority Groups at the Same Institution**: By comparing the metrics of underrepresented groups to those of majority groups within the same institution, administrators can identify internal disparities and focus on creating more equitable conditions. This comparison helps to highlight specific areas where underrepresented students may need additional support and resources to achieve similar outcomes as their peers.
2. **Underrepresented Groups at Similar Institutions**: Comparing the metrics of underrepresented groups to those of similar groups at other institutions provides a

broader perspective on how well an institution is performing in the context of national trends and standards. This external benchmarking allows institutions to measure their progress against peers and identify successful strategies and interventions that have been effective elsewhere.

These comparisons are essential for developing targeted strategies that address specific gaps and challenges faced by underrepresented students. By leveraging national data and understanding the context within which their institution operates, administrators can make informed decisions and implement initiatives that foster greater inclusivity and student success.

Underrepresented and Marginalized Groups

Underrepresented and marginalized groups in higher education refer to populations that have historically had limited access to and representation within academic institutions. These groups face various barriers that impact their enrollment, retention, and completion rates compared to their peers. Currently, the definitions used to measure underrepresentation in higher education are primarily based on race/ethnicity, gender, and Pell Grant eligibility. Racial and ethnic categories often include African Americans, Hispanics, Native Americans, and other minority groups. Gender-based analysis typically focuses on the underrepresentation of women in certain fields, especially in STEMM disciplines. Pell Grant[3] eligibility serves as a proxy for socioeconomic status, identifying students from lower-income backgrounds who receive federal financial aid. While these metrics provide a foundational understanding, they are limited and do not fully capture the diversity and intersectionality of students' experiences, highlighting the need for more comprehensive data collection methods.

Other demographic characteristics may be collected as part of this program, but they will need to compared to national benchmarks for race/ethnicity and gender in order to situate the recognition of diversity for those groups (e.g. students with disabilities, LGBTQIA+, neurodivergence, first-generation students, etc.)

Reporting Burden

In order to reduce reporting for institutions participating in this recognition program and to allow for benchmarks to be created as the program is initializing, it is strongly recommended that data collection is aligned with federal higher education data collections. The Integrated Postsecondary Education Data System (IPEDS) is an annual data collection

[3] Pell Grant eligibility refers to a student's qualification to receive financial aid from the federal government, specifically designed to support low-income undergraduate students in accessing higher education. Eligibility is determined based on the student's financial need, as assessed through the Free Application for Federal Student Aid (FAFSA). It is used as a measure of socio-economic status.

program managed by the National Center for Education Statistics (NCES) that gathers detailed information from all primary providers of postsecondary education in the United States. Title IV institutions, which participate in federal student financial aid programs, are required to report various data to IPEDS, including enrollment, graduation rates, financial aid, and more. This reporting is crucial for ensuring data accuracy and integrity, supporting informed decision-making, maintaining transparency and accountability, enabling institutional benchmarking, and ensuring continued eligibility for federal financial aid programs. Compliance with IPEDS reporting requirements helps to provide a comprehensive view of the higher education landscape and supports the development of effective education policies and practices. Appendix B describes the IPEDS survey and regulatory structure in more detail.

Other measures, outside of IPEDS definitions, may be found to be useful – however, non-standard data collections will impose a higher reporting burden on an institution participating in any recognition and make it difficult to evaluate progress without a lot of institutional participation.

What are the constraints on obtaining data for individual STEMM disciplines? Should this program use broad categories like "physical science," "life science," "social science," and "engineering"? Institutions report data by CIP code (see Appendix A for an overview). It is recommended to start collecting data at the 2-digit level, or at the 4-digit level for larger disciplines (such as Civil Engineering and Mechanical Engineering within Engineering). These broader categories are more stable and reliable when comparing data across different institutions.

An iterative approach that incorporates continuous processes and evaluation is envisioned here: starting with larger categorizations can be refined in further phases of development as the program is implemented and feedback from participants is sought. This method ensures that the data collection framework evolves over time, becoming increasingly precise and effective in capturing the nuances of STEMM disciplines while maintaining consistency and comparability.

Completion Rates by Discipline

Data at the national level for completion and retention begins with defining the entering cohort as first-time, full-time students[4].

Defining 6-year completion rates seems straightforward, however, discipline level data becomes a challenge. National surveys, such as the American Society for Engineering

[4] These completion rates do not reflect pathways that non-traditional students take – students with children, other care-taking responsibilities, or with full-time jobs are often not captured in the national benchmarks.

Education's (ASEE) Retention and Time-to-completion Survey reports data for first-time, full-time students who enroll in an engineering program and complete an engineering program. Students who complete another major outside engineering do not count as completions. Thus, any discipline level program will confront measuring two variables: in program retention and completion and completion within an institution. Data are only reported out for certain race/ethnicity combinations because of the low counts for smaller groups. In Figure 1, 6-year completion rates are graphed from the ASEE data and show that completion rates differ widely by race/ethnicity with approximately 10-20% lower completion rates for Hispanic and African American students compared with all students. The completion gap shrinks for Hispanic students, but remains the same for African Americans across 2011-2018.

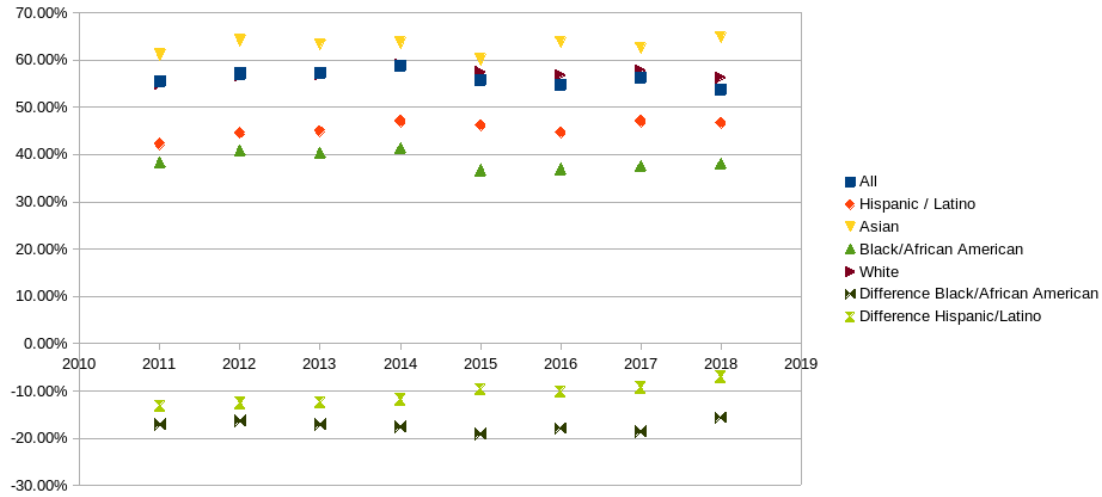

Figure 1: 6-year completion in Colleges of Engineering[5].

The Minimum Completion Rate an Institution Should Achieve

The institutional variability for retention and completion for different groups can fluctuate widely – some institutions have 6 year completion rates of less than 10% for some demographic groups reported in their national IPEDS data. The floor for recognition should be at least 30% along with demonstrated improvement – if an institution has as a 6-year completion rate of 31% for African American students in Year 1, but has increased this to 41% by Year 2, then such improvement can potentially be recognized. There could be different standards developed for institutions which have high applicant rejection rates – for these, a 85% floor or higher would be appropriate. For institutions which admit a majority Pell grant eligible students, perhaps a lower floor could be set at 40%.

[5] (American Society of Engineering Education, Retention and Time-to-completion Survey, 2019)

Field	Group	Total UG	Percent	Total First Time UG	Full-time	Full-time, First Time	Part-time UG	Part-time, First Time	% Full-time	%Full-time, First Time
Biological Sciences	All Students	599,153	100	136,495	534,920	131,887	64,233	4,608	89.3%	96.6%
	All Women	404,346	67.5%	94,827	362,594	91,668	41,752	3,159	89.7%	96.7%
	Asian Students	79,500	13.3%	16,585	73,023	16,252	6,477	333	91.9%	98.0%
	Black/African American Students	63,374	10.6%	16,127	55,525	15,545	7,849	582	87.6%	96.4%
	Hispanic/Latino Students	111,539	18.6%	26,366	93,664	24,754	17,875	1,612	84.0%	93.9%
	International Students	17,741	3.0%	3,755	16,757	3,659	984	96	94.5%	97.4%
	Native American Students	2,451	0.4%	590	2,046	543	405	47	83.5%	92.0%
Engineering	All Students	588,985	100	136,749	524,029	131,764	64,956	4,985	89.0%	96.4%
	All Women	143,966	24.4%	34,277	131,647	33,373	12,319	904	91.4%	97.4%
	Asian Students	72,758	12.4%	17,722	66,405	17,279	6,353	443	91.3%	97.5%
	Black/African American Students	34,417	5.8%	9,029	29,717	8,568	4,700	461	86.3%	94.9%
	Hispanic/Latino Students	98,205	16.7%	23,297	81,507	21,526	16,698	1,771	83.0%	92.4%
	International Students	37,368	6.3%	7,009	34,569	6,872	2,799	137	92.5%	98.0%
	Native American Students	1,874	0.3%	482	1,518	448	356	34	81.0%	92.9%
Math	All Students	86,975	100	12,623	76,205	12,215	10,770	408	87.6%	96.8%
	All Women	35,202	40.5%	5,387	31,112	5,221	4,090	166	88.4%	96.9%
	Asian Students	12,118	13.9%	1,633	10,953	1,593	1,165	40	90.4%	97.6%
	Black/African American Students	4,323	5.0%	740	3,504	697	819	43	81.1%	94.2%
	Hispanic/Latino Students	12,663	14.6%	2,026	9,983	1,886	2,680	140	78.8%	93.1%
	International Students	12,913	14.8%	1,282	12,434	1,265	479	17	96.3%	98.7%
	Native American Students	226	0.3%	40	161	37	65	3	71.2%	92.5%
Physical Sciences	All Women	58,196	66.9%	12,829	51,085	12,335	7,111	494	87.8%	96.1%
	All Students	124,740	100	25,523	107,937	24,492	16,803	1,031	86.5%	96.0%
	Asian Students	11,418	13.1%	2,386	10,171	2,312	1,247	74	89.1%	96.9%
	Black/African American Students	9,407	10.8%	2,438	7,966	2,341	1,441	97	84.7%	96.0%
	Hispanic/Latino Students	19,537	22.5%	4,248	15,883	3,969	3,654	279	81.3%	93.4%
	International Students	7,184	8.3%	1,275	6,883	1,246	301	29	95.8%	97.7%
	Native American Students	504	0.6%	83	402	74	102	9	79.8%	89.2%

Enrollment by Discipline

Fall 2022 Enrollment for discipline large groups (2-digit CIP levels). There is a wide variability in representation for each discipline. African American students are 10% of those enrolled for Biological Science and Physical Sciences, but only 5% of those enrolled for engineering and mathematics undergraduate programs. When we examine the percent of students enrolled full-time (versus part-time) there are difference across fields and across groups.

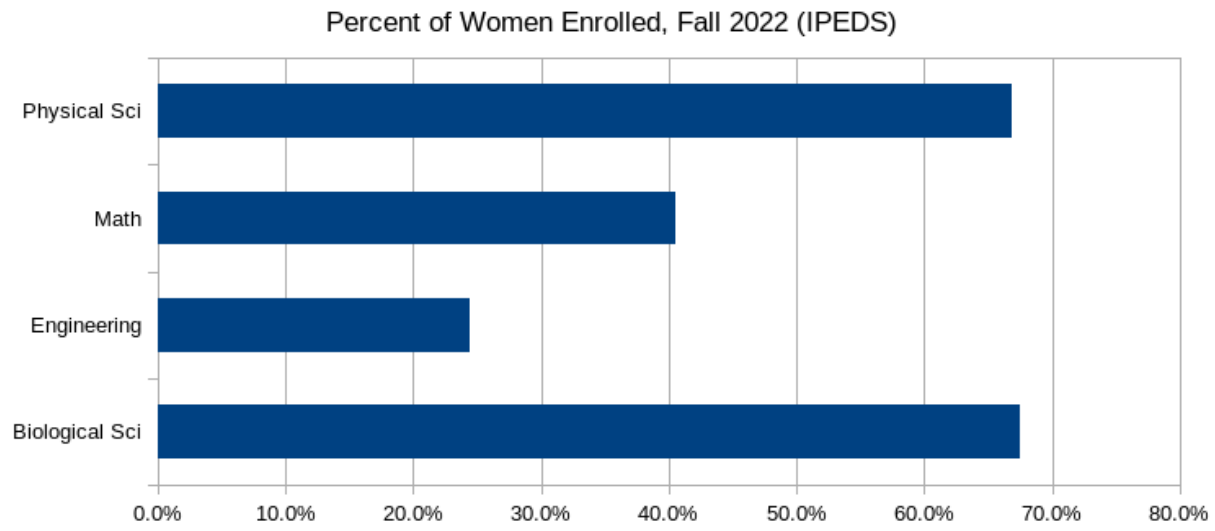

Figure 2: Fall 2022 Percent Enrollment of Women by Field

Representation across disciplines varies significantly for women. They have the lowest representation in Engineering, while their highest representation is found in Biological Sciences and Physical Sciences. However, it is important to note that there are distributional differences even within these fields. Although IPEDS does not collect data on enrollment by specific engineering disciplines, the ASEE's "Engineering by the Numbers" report for Fall 2022 shows that women constitute nearly 50% of students in Environmental Engineering and Biomedical Engineering. In contrast, their representation is much lower in fields such as Mechanical Engineering and Electrical Engineering.

Minimum Sample Size

Institutions may hesitate to release information when the total number of individuals in a specific demographic group falls below a certain threshold, fearing that individuals could be identified. This concern often stems from confusion around privacy laws and reporting requirements. However, it is important to clarify that reporting de-identified data by race/ethnicity and gender is standard practice in higher education even with low counts. For instance, in 2022, according to IPEDS data, 108 institutions reported having only one student who identified as Native American enrolled as a full-time, first-time student in an

engineering program. Some staff members might incorrectly believe that reporting such small numbers violates privacy laws.

It is crucial to understand that enrollment data and degrees awarded data, when de-identified, do not breach privacy regulations. Privacy laws would be violated only if personally identifiable information, such as the name of the individual student, were disclosed. By adhering to standard practices of de-identifying data, institutions can safely report demographic information for degrees awarded and enrollment without compromising privacy. Educating staff about these distinctions can help alleviate concerns and ensure accurate data reporting, which would be critical for the program to be successful. Enrollment and completions can be reported at any level of detail in alignment with the federal data collections.

However, it is important to recognize that performance data, such as retention rates or grades, could potentially be traced back to an individual, which poses a different set of challenges. For example, if there is only one Native American student at a particular institution and that student did not complete the program, it might be possible to identify the student through other data platforms. This would reveal the student's performance in the program, which could be problematic and a violation of privacy.

To address these concerns, the recognition program should only collect retention data for demographic groups with more than five students. This approach minimizes the risk of inadvertently identifying individual students based on their performance data. By setting this threshold, the program ensures that data collection remains both useful and compliant with privacy regulations. This precaution helps maintain the confidentiality of individual students while still providing valuable insights to inform diversity and inclusion initiatives. Ensuring that data collection methods protect individual identities is essential for fostering an environment where data can drive positive change without compromising privacy.

Another point of confusion regarding sample size is that some federal surveys do not report detailed counts for small cell sizes, not due to privacy concerns, but because the estimates for these small cells lack statistical validity. When sample sizes are too small, the reliability of percentage or rate calculations diminishes significantly. For instance, in a cohort of 30 students, a change involving one student will have a minimal impact on the overall rate. However, in a cohort of only three students, the same change would drastically alter the rate, leading to potentially misleading conclusions. Therefore, for purposes of recognition and to ensure robust and valid data, it is advisable to limit the consideration of cell sizes to those with 30 or more students. This threshold helps maintain the integrity of the data, providing more stable and meaningful insights when evaluating percentages or rates related to enrollment, retention, and completion.

When considering the granularity of discipline (e.g., all engineering fields versus specific ones), it is important to recognize that the number of students from smaller demographic groups, such as Native American students, will be low regardless of the discipline. Conversely, larger demographic groups, such as men in engineering, will remain relatively numerous regardless of the level of discipline granularity. For instance, in the US in 2022, the engineering program with the highest number of Native American women enrolled had only three Native American women. This stark difference in numbers underscores the challenge of collecting and reporting meaningful data for smaller demographic groups when using highly granular discipline categories. This, however, does not get resolved by using "larger" grouping of disciplines. Setting a minimal cell size for performance data and rate or percentage data (if used) would be most advisable. The granularity of the discipline collected should be broad at first, but could be made more granular as more institutions participate and more data is collected.

Conclusion

To garner support from institutional leaders, the program should collect data in a manner aligned with IPEDS to minimize the reporting burden on institutions. By streamlining data collection with established IPEDS protocols, the program ensures consistency and ease of reporting. Additionally, the program should include a robust benchmarking mechanism that allows institutions to compare their performance against peers. This comparison can help institutions identify areas for improvement and adopt best practices.

Moreover, the program should create opportunities for institutions that excel above the national average to showcase their successful policies, efforts, and initiatives. By highlighting these effective strategies, other institutions can learn and potentially replicate these successes. While many institutions may have high enrollment rates for underrepresented groups due to their applicant pool demographics, it is crucial to focus on retention and completion rates as key measures of success. Ensuring that students not only enroll but also thrive and graduate is essential for true equity and excellence in higher education.

Appendix A: Classification of Instructional Programs (CIP) Codes

The Classification of Instructional Programs (CIP) is a comprehensive taxonomic scheme designed to support the accurate tracking and reporting of fields of study and program completion activity. Developed by the U.S. Department of Education's National Center for Education Statistics (NCES), CIP codes provide a standardized framework that categorizes and compares educational programs across institutions. This system is essential for maintaining consistency and comparability in data reporting, which is particularly valuable for higher education executives.

For executives in higher education, CIP codes are crucial tools for classifying degree programs, especially when aiming to measure diversity through enrollment, retention, and completion metrics. These codes facilitate the collection of uniform data, enabling institutions to benchmark their performance against others and to analyze trends over time. By using CIP codes, institutions can ensure that their data reporting is both precise and comparable with that of other institutions, fostering a more cohesive understanding of educational outcomes across the sector.

The structure of CIP codes is hierarchical, comprising three levels of classification that allow for varying degrees of specificity:

- **2-digit series**: These codes represent the broadest categories and cover general academic and occupational areas. For example, the category might include "Engineering" or "Health Professions and Related Programs."
- **4-digit series**: This intermediate level of classification identifies subfields within the broad categories. For instance, under "Engineering," there could be subfields such as "Civil Engineering" or "Mechanical Engineering."
- **6-digit series**: The most detailed level, these codes specify particular instructional programs. For example, within "Civil Engineering," there might be specific programs like "Structural Engineering" or "Transportation and Highway Engineering."

This hierarchical structure allows institutions to report data at varying levels of detail, depending on their needs and the specificity required. It also aids in the detailed analysis of program offerings and outcomes, which is essential for assessing and improving diversity metrics. By employing CIP codes, institutions can better understand and address the educational needs of their diverse student populations, ultimately enhancing their ability to support all students effectively.

A single program is assigned a six-digit CIP code and can be reported at the 6-digit level, 4-digit level or 2-digit level. Reporting at a higher level (2 or 4-digit) may allow for more stable comparisons between metrics. Enrollment data in IPEDS, for example, is only

collected at the 2-digit level (and not for all two digit codes). The full-listing of current CIP codes is available here: https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55

The CIP codes undergo a rigorous evaluation every 10 years to ensure their completeness and relevance at the federal level. This periodic review is essential for maintaining the accuracy and utility of the classification system, as it allows for the incorporation of new and emerging fields of study. New codes are added based on feedback from educational institutions and observations of program developments by IPEDS staff. For example, in 2020, CIP codes for data analytics and data science were introduced to reflect the growing importance of these disciplines.

On individual campuses, a similar evaluation process takes place. Institutions regularly discuss and review how to report their programs, ensuring that their offerings are accurately represented within the CIP framework. This internal review is crucial for aligning institutional data with national standards and for addressing specific challenges that may arise. One significant issue that can influence the assignment of CIP codes is the presence of state system regulations. Some state systems prohibit institutions from offering specialized programs if another institution within the state system already offers the same program. This conflict is typically identified at the 4-digit or 6-digit CIP level, as program names can vary widely. Such regulations require careful consideration to ensure compliance while still accurately reporting program offerings.

Another constraint on the selection of CIP codes is related to visa programs[6]. Certain visa categories only accept specific CIP codes, which can impact the ability of institutions to attract international students. Ensuring that programs are assigned the correct CIP codes that meet visa requirements is essential for maintaining the diversity and global reach of educational institutions.

Below is a listing of all 2-digit codes:

- 01) AGRICULTURE, AGRICULTURE OPERATIONS, AND RELATED SCIENCES.
- 03) NATURAL RESOURCES AND CONSERVATION.
- 04) ARCHITECTURE AND RELATED SERVICES.
- 05) AREA, ETHNIC, CULTURAL, AND GENDER STUDIES.
- 09) COMMUNICATION, JOURNALISM, AND RELATED PROGRAMS.
- 10) COMMUNICATIONS TECHNOLOGIES/TECHNICIANS AND SUPPORT SERVICES.
- 11) COMPUTER AND INFORMATION SCIENCES AND SUPPORT SERVICES.
- 12) PERSONAL AND CULINARY SERVICES.

[6] An example is the Department of Homeland Security's current list of eligible CIP codes for a STEM OPT extension: https://studyinthestates.dhs.gov/stem-opt-hub/additional-resources/eligible-cip-codes-for-the-stem-opt-extension

- 13) EDUCATION.
- 14) ENGINEERING.
- 15) ENGINEERING TECHNOLOGIES/TECHNICIANS.
- 16) FOREIGN LANGUAGES, LITERATURES, AND LINGUISTICS.
- 19) FAMILY AND CONSUMER SCIENCES/HUMAN SCIENCES.
- 22) LEGAL PROFESSIONS AND STUDIES.
- 23) ENGLISH LANGUAGE AND LITERATURE/LETTERS.
- 24) LIBERAL ARTS AND SCIENCES, GENERAL STUDIES AND HUMANITIES.
- 25) LIBRARY SCIENCE.
- 26) BIOLOGICAL AND BIOMEDICAL SCIENCES.
- 27) MATHEMATICS AND STATISTICS.
- 28) RESERVE OFFICER TRAINING CORPS (JROTC, ROTC).
- 29) MILITARY TECHNOLOGIES.
- 30) MULTI/INTERDISCIPLINARY STUDIES.
- 31) PARKS, RECREATION, LEISURE, AND FITNESS STUDIES.
- 32) BASIC SKILLS.
- 33) CITIZENSHIP ACTIVITIES.
- 34) HEALTH-RELATED KNOWLEDGE AND SKILLS.
- 35) INTERPERSONAL AND SOCIAL SKILLS.
- 36) LEISURE AND RECREATIONAL ACTIVITIES.
- 37) PERSONAL AWARENESS AND SELF-IMPROVEMENT.
- 38) PHILOSOPHY AND RELIGIOUS STUDIES.
- 39) THEOLOGY AND RELIGIOUS VOCATIONS.
- 40) PHYSICAL SCIENCES.
- 41) SCIENCE TECHNOLOGIES/TECHNICIANS.
- 42) PSYCHOLOGY.
- 43) SECURITY AND PROTECTIVE SERVICES.
- 44) PUBLIC ADMINISTRATION AND SOCIAL SERVICE PROFESSIONS.
- 45) SOCIAL SCIENCES.
- 46) CONSTRUCTION TRADES.
- 47) MECHANIC AND REPAIR TECHNOLOGIES/TECHNICIANS.
- 48) PRECISION PRODUCTION.
- 49) TRANSPORTATION AND MATERIALS MOVING.
- 50) VISUAL AND PERFORMING ARTS.
- 51) HEALTH PROFESSIONS AND RELATED CLINICAL SCIENCES.
- 52) BUSINESS, MANAGEMENT, MARKETING, AND RELATED SUPPORT SERVICES.
- 53) HIGH SCHOOL/SECONDARY DIPLOMAS AND CERTIFICATES.
- 54) HISTORY
- 60) Residency Programs.

Appendix B: Integrated Postsecondary Education Data System (IPEDS)

The Integrated Postsecondary Education Data System (IPEDS) is a comprehensive data collection program managed by the National Center for Education Statistics (NCES). It gathers information from all primary providers of postsecondary education in the United States. IPEDS is designed to provide policymakers, educators, and the public with accurate and detailed data about postsecondary education institutions, their programs, and the students they serve.

IPEDS Survey Overview

IPEDS consists of a series of interrelated surveys conducted annually. These surveys collect data in various areas, including:

- **Institutional Characteristics**: General information about the institution, such as type, control, calendar system, and admissions criteria.
- **Enrollment**: Data on student enrollment by demographics, attendance status, and program level.
- **Student Financial Aid**: Information on financial aid provided to students, including the number of students receiving aid and the amount of aid awarded.
- **Graduation Rates**: Data on the completion rates of students within a specified period.
- **Retention Rates**: Information on the retention of first-time, degree-seeking students from one academic year to the next.
- **Completions**: Data on the number of degrees and certificates awarded by field of study and degree level.
- **Human Resources**: Information on staff, including numbers, demographics, and types of employment.
- **Finance**: Financial data, including revenues, expenditures, and assets.
- **Academic Libraries**: Data on library collections, expenditures, and services.

Reporting Requirements for Title IV Institutions

Title IV institutions are those that participate in federal student financial aid programs under Title IV of the Higher Education Act of 1965. These institutions are required to report data to IPEDS as part of their participation agreement. The key requirements for Title IV institutions include:

1. **Annual Submission**: Title IV institutions must submit IPEDS data annually. The submission period is divided into three reporting windows: Fall, Winter, and Spring. Each window focuses on different components of the IPEDS surveys.

2. **Data Accuracy and Integrity**: Institutions are responsible for ensuring the accuracy and completeness of the data they submit. This involves cross-checking data for consistency and addressing any discrepancies before submission.
3. **Compliance with Deadlines**: Institutions must adhere to strict reporting deadlines for each of the survey components. Failure to submit data on time can result in penalties, including fines and the potential loss of eligibility to participate in Title IV federal student aid programs.
4. **Use of a Designated Keyholder**: Each institution must designate a keyholder, typically an institutional research officer or another responsible individual, who manages the IPEDS data submission process. The keyholder ensures that data are collected, verified, and submitted accurately and on time.
5. **Public Accessibility**: The data collected through IPEDS are made publicly available, providing transparency and enabling stakeholders to make informed decisions. This data is accessible through the IPEDS Data Center, which allows users to generate reports, analyze trends, and compare institutions.

Importance of IPEDS Reporting

Reporting to IPEDS is crucial for several reasons:

- **Informed Decision-Making**: Policymakers, educators, and the public rely on IPEDS data to make informed decisions about postsecondary education policies and practices.
- **Accountability and Transparency**: IPEDS data provide a transparent view of institutional performance, helping to hold institutions accountable for their outcomes.
- **Benchmarking and Analysis**: Institutions use IPEDS data to benchmark their performance against peers, identify trends, and develop strategies for improvement.
- **Eligibility for Federal Aid**: Compliance with IPEDS reporting requirements is essential for maintaining eligibility to participate in Title IV federal student aid programs, which provide crucial financial support to students.

The IPEDS survey is a vital tool for collecting and disseminating data on postsecondary education in the United States. Title IV institutions must comply with IPEDS reporting requirements to ensure continued participation in federal financial aid programs and to contribute to a comprehensive understanding of the higher education landscape.