Academic Program Development

SIU System Working Group

Final Report

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The charge of this committee, and the purpose of this report, is to consider ways in which the SIU campuses, particularly the campuses of SIUC and SIUE, can collaborate to promote academic opportunities for prospective students, share curricula, and identify mutually beneficial activities that will also serve the region. With authentic and meaningful commitment from campus leadership and faculty, there are significant opportunities and benefits that could be gained by leveraging resources and collaborative possibilities. It will be important that the System Office, particularly the Vice President for Academic Innovation, Planning, and Partnership, and President provide leadership and support for removing barriers and addressing the independent concerns of each campus. More importantly, these possibilities will not be achieved without earnest and open communication of concerns, small wins, and greater trust among the campuses. We offer these suggestions with the hope that these possibilities and opportunities can be realized, while recognizing the process and work will have its challenges.

It is tempting to simply provide a list of strong programs on each campus that we believe should be preserved or could be expanded to the other campus to the benefit of all, and even a list of known growth areas we could venture together. However, we believe that doing this, while aspirational, is not a sufficient first step. We do, however, recognize there are unique academic strengths at Carbondale and Edwardsville and opportunities for expansion at both. We have included areas of strength and planned programming at the two campuses in Appendix A and B, representing Carbondale and Edwardsville respectively. We strongly encourage the new Academic Vice President to ensure greater communication and coordination. For example, most recently, there was a significant missed opportunity for coordination with the SIUC Doctorates in Physical Therapy and Occupational Therapy (DPT and DOT), which could be addressed with greater communication and coordination going forward. Similarly, when SIUE

added an online option to its existing flex program MBA, it would have been useful to have prior cross-campus discussion so that the new opportunities with Academic Partnerships might have been considered across the System or collaborative possibilities within the existing MBAs could have been discussed. Regardless of where a new program opportunity originates, there may be collaborative opportunities that could strengthen new programs. Nevertheless, such coordination should not deter the individual campuses from serving their regional needs, building upon their strengths, and fulfilling their missions. Additionally, there are potential industry and community partnerships that might be more fully leveraged together, rather than independently. These opportunities need dedicated attention, nurturing and facilitation.

The bulk of this report will focus on the following:

- Curricular and Course-Sharing

- Domestic Field Study Experiences and Exchange Programs

- Coordinated Programming

- Building Pathways to Advanced Degrees, particularly equity-minded paths

Curricular Collaboration and Course-Sharing

We will begin by considering what curricular sharing across two campuses might look like, and in particular, explore the structural, procedural, technical, and even cultural challenges that need to be addressed before any meaningful exchanges could be successful. It is not our intention to solve all challenges or problems in this report. We believe that the skilled professionals on both campuses, once tasked, will be able to do so much more quickly and effectively than we can. Rather, we seek to provide a road map to guide the SIU System to a place where any proposed curricular sharing would be not only possible, but comparatively

simple, inexpensive, and ultimately highly beneficial to both students and faculty on both campuses.

As context, we began our meetings in February 2020, well before anyone had seriously considered the possibility of statewide campus closures due to the Covid-19 pandemic. In our early meetings, we began discussing which new programs we might develop jointly, which existing programs we might share, and what such sharing might look like. And then, the world shifted beneath our feet and we all shifted into "pandemic mode." A suggestion we had considered prior to the pandemic was to look at the existing online courses offered on both campuses, and to explore the possibility that individual online course offerings found on only one campus be opened up to students on the other. As an example, both SIUC and SIUE have a Communication Studies program and offer a Public Relations specialization/track. Only Carbondale, however, has a Sports PR course, and only Edwardsville has an International PR course. Creating a mechanism by which PR students from each campus could seamlessly enroll in online sections of these course on the other campus would benefit students in both programs. We found a similar argument could be made about many programs. The only problem was the previous lack of courses ordinarily on-line during the Fall and Spring semesters. As one might imagine, this is no longer true and is unlikely to be the case moving forward, as an entire semester's worth of course inventory on both campuses is now, at least, partially developed for online or remote delivery, as a response to Covid-19. Faculty who had no interest in making such a move have now made that emergency transition, which has led to building new online opportunities for the '20-'21 academic year. Moreover, departments reluctant to expend the time and resources have now done so. Classes that were too hard or "impossible" to move online have been moved there anyway. Had our committee lobbied for this, it would likely never have

happened, but given that it has, we propose taking full advantage of the new capacities and learning opportunities to strengthen our programs and enhance the student experience and opportunities.

Let us now consider some of the issues that will need to be addressed in order to share online curricula across campuses. We recognize this section needs to be reviewed for topic addition/subtraction and topic sequence, then expanded through future committee's efforts:

- Marketing
- Technology compatibility and software/hardware requirements
- Advising
- Financial Aid Flexibility/Versatility
- Consistency or System Tuition & fee Rates
- Reciprocity and Exchange Relationships that can be monitored over time
- Enrollment
- Program and University transfer policies or Consortium agreements
- Academic Calendars
- Course scheduling
- Outcomes/competencies alignments/ Program reviews
- FTEs
- Transcripting

While this list seems daunting at first glance, it should be noted that there are already a number of programs that have successfully navigated many of the issues above and other public University systems that provide exemplars (e.g. University of Illinois, Indiana University Purdue University Indianapolis). A clear example within the SIU System is our shared experience with cooperative Ph.D. programs. We already have both an application process, and a mechanism for addressing tuition and fees across campuses.

Both campuses have students who are dual majors, so we have mechanisms for dealing with shared head counts. Both campuses have 2+2 programs with area community colleges, 3+2 accelerated Master's programs, and interdisciplinary major programs that provide expanded models for sharing curricula. In addition, both campuses have successful international

reciprocity agreements with campuses across the globe. We are confident that if we can successfully partner with international universities, we can do so with one another within the System. Finally, we are aware of many consortia arrangements accredited by the HLC that we can look to for best practice models to fill in any gaps as we move forward.

Recommended Action Steps:

Form an inter-campus committee that can work through relevant issues to create streamlined opportunities for students and address the issues above. Identify select programs to pilot in Spring 2021 and Fall 2021. Additionally, the group should identify a list of courses that could be shared over time with regularity and ease. We believe there are additional opportunities to build collaborations between the two campuses to offer badges (credit and non-credit) and stackable micro-credentials, building on the unique strengths of each campus.

One place to start would be with the Honors Programs at each campus. Honors Programs can be imagined as test-beds for broader innovations. The Honors Programs at SIUC and SIUE can explore collaborating on curricular and programmatic initiatives, which would further our systems advantage of location in both an urban and rural setting. The curriculum in Honors education is integrally connected to holistic education involving interdisciplinarity, service, and active learning opportunities. For instance, both programs could cohere some of their courses around a theme. Themes of interest circle around sustainability in the broadest sense, of both our environment and humanity. We could pick the same theme and coordinate a distinguished speaker series and service opportunities for students on both campuses. We could work on projects that involve both campuses. For instance, both campuses share a common history in Buckminster Fuller's ideas about society, technology, and education. We can also expand our curricular offerings with virtual and mixed modes of teaching.

The directors of the Honors program on the respective campus have already established a meeting schedule and a pilot for course sharing in Fall 20-21. In Fall 2020, SIUC Honors is offering *Intercollegiate Athletics*, a course taught by President Dan Mahony and D. Bobbi Knapp (Associate Professor, Kinesiology) to both SIUC and SIUE students. Both Drs. Knapp and Mahony were given 0% appointments in SIUE. We are now working towards creating a course to be offered by Dr. Jeffrey Manuel, Associate Professor of History from SIUE on the history and culture of the Mississippi River that students on both campuses will be able to take. There is a lot of enthusiasm about curricular collaboration. However, the details of cost sharing are more complex.   Yet, as a pilot this has been a really energizing project to work on.

Domestic Field Study Experiences and Exchange Programs

Both campuses have forged significant and powerful international exchange relationships. In these relationships, students receive opportunities to learn in new environments with institutional partners abroad. We create reciprocity agreements such that students pay the home institution's tuition and attend the partner institution, with no transfer of funds in many cases. We argue that similar kinds of exchanges could occur to provide students residential opportunities in Edwardsville and Carbondale when exchange relationships are codified. The locations of each campus and the distinctive partnerships (e.g. corporate, community, etc.) provide unique learning opportunities that could be enriching for student learning and engagement.

Recommended Action Steps:

A working group would develop procedures and templates to facilitate the development of exchange relationships within the system that do not require overly bureaucratic processes of admissions, financial aid, tuition differences, scholarships, etc. Student-centered solutions that

remove these barriers in similar ways to international partnerships are warranted and advantageous.

Coordinated and Cooperative Programming

There are opportunities to imagine new ways of launching and sharing programs and opportunities for students to optimize resource expenditures and maximize student opportunities. For example, when SIUC submitted its proposals to IBHE for the Physical Therapy and Occupational Therapy programs, SIUE's faculty had spent a year planning and developing proposals for the same programs that were ending their journey through the internal shared governance processes. Without coordination, the System loses an opportunity to think more fully about how to meet the needs of the individual regions of the campus and the broader state.

Recommended Action Steps

We encourage the President's Office to build greater collaboration, find creative and mutually beneficial solutions, and to enhance enrollment across the system. For example, consider how new degree programs are approved. A proposal for a new academic program uses the format of a new unit of instruction (NUI) and a notice of intent (NOI). The NOI is posted by IBHE for at least 30 days prior to any Board action, and remains active for one year after the public posting period has expired. At one point in time, NOIs were submitted in advance of submitting the NUI in order to notify others and received feedback/comments. Returning to this practice would facilitate communication between our campuses. Any adjustments should not slow down the processes that can already be cumbersome. If the communication does not occur early in the process, then faculty resources, including their hard work and creativity, could be impeded at the late stages, and we would like to avoid such practices.

We also encourage a working group to explore options for cooperation and collaboration among degree programs across each campus. This working group would also be able to identify opportunities to grow new areas of academic programming to serve regional and national needs. For example, we could explore new opportunities to build new interdisciplinary groups by recognizing unique courses and scholarship in complementary programs such as chemistry, fermentation science, food science, agriculture, nutrition, political science, and health related disciplines.

Recommended Action Steps:

Form an inter-campus committee that can identify strategic opportunities to build collaborative programs that would not be easily achieved independently but would add value for students and regional employers. The working group should also examine possibilities for concurrent degree programs that are not yet in place. These should be examined across the system, including the SIU School of Medicine and SIUE School of Dental Medicine.

Building Pathways to Advanced Degrees, particularly equity-minded paths

We propose developing coordinated pathways to graduate degrees. Individually, campuses offer accelerated pathways from undergraduate to master's programs in a number of disciplines. The discussion often starts when students are involved in initiatives that expose them to research. Both campuses have programs that promote these opportunities (SIUE URCA, SIUC REACH). In addition, SIUC has a McNair program and both campuses have hosted an NSF REU program. There are currently four cooperative PhD programs between the SIUE and SIUC and one between SIUE and the SOM that provide a pathway for graduate studies at the doctoral level. In addition, a number of the doctoral programs at SIUC have direct entry option for high achieving undergraduates. Expanding these pathways system-wide for PhD and

Professional Doctoral programs would provide interesting and important avenues for recruitment. In addition, we are committed to working in equity-minded ways that build and support pathways programs that are specific to recruitment of students who are historically under-represented in higher education, including Black/African Americans, Hispanic/Latino students, first-generation students, and people with disabilities.

It cannot be understated that the mission statements of both campus respect and support this goal.

SIUE Mission:

Southern Illinois University Edwardsville is a student-centered educational community dedicated to communicating, expanding and integrating knowledge. In a spirit of collaboration enriched by diverse ideas, our comprehensive and unique array of undergraduate and graduate programs develops professionals, scholars and leaders who shape a changing world.

SIUC Mission:

SIU embraces a unique tradition of access and opportunity, inclusive excellence, innovation in research and creativity, and outstanding teaching focused on nurturing student success. As a nationally ranked public research university and regional economic catalyst, we create and exchange knowledge to shape future leaders, improve our communities, and transform lives.

These kinds of opportunities could be explored for first-professional doctoral programs as well. For example, beginning with the class of 2021, SIUE Honors students with any bachelor's degree who meet GPA and curriculum requirements are guaranteed admission to the SIUC

School of Law. The System could also facilitate the development of pathways that originate with community college partners and build new relationships with HBCU/HSI to build a pathway from undergraduate programs to accelerated Masters programs on both campuses and PhD programs at SIUC.

Recommended Action Steps:

An inter-campus committee with representatives from both Graduate Schools should be formed to conduct an analysis of current accelerated BS/BA to MS/MA pathways and match them with PhD or Doctoral programs in appropriate disciplines. Similarly, the group can look into establishing relationships on both campuses with HBCU/HSI undergraduate programs, with possible focus on STEM disciplines, to create stronger and more equitable pathways for students from under represented populations to seek degrees in STEM and earn graduate degrees culminating with the PhD. A select number of programs can be identified as potential pilots with support from both campuses.

Conclusion

This report does not address the full scope of collaborative academic programming possibilities. We recognize there are many additional opportunities in related areas of enrollment management, curriculum, pathways, and research and creative activities. Nevertheless, we believe these recommendations provide a starting point and initial guidance to help enhance and support collaboration within the System. To realize the full potential of System partnerships, the work will need support from the President and Vice-Presidents, and will most likely benefit from incentives and seed funding. We hope this offers guidance and direction to help facilitate the kinds of collaboration that will, ultimately, benefit our current and future students, the employers of the region, and the communities we serve.

Appendix A: Academic Planning Working Group

Top **SIUC** programs that are generating strong enrollment and that we could enhance with more resources:

NEW **SIUC** programs we may want to grow in the future that would allow us to increase student enrollment:

MCMA
Cinema

Animation and Gaming
Advertising

BUSINESS
Analytics

COLA
Communication Studies
Musical Theater

Digital Humanities

HEALTH AND HUMAN SCIENCES
Nursing

Therapeutic Recreation

Radiologic Sciences
Masters in Health Administration
Psychology
Criminology & Criminal Justice
Exercise Science
Social Work

AGRICULTURE
Animal Science
Fermentation Science
Forestry

Food Science/Technology
Horticulture (hemp/cannabis)
Fermentation Science

ENGINEERING, SCIENCE, TECHNOLOGY
B.S. in Mechanical Engineering
Computer Science
Zoology
Biological Sciences
Automotive Technology
Aviation Technology/Management

Biomedical Engineering
Cybersecurity
Bioinformatics/Informatics
Chemistry/Physics/Engineering

1. Develop a pathway to SIUC doctoral programs for students from underrepresented backgrounds who are studying undergraduate and masters level programs at SIUE. SIUC doctoral students from underrepresented backgrounds could serve as mentors to SIUE students

2. Within current online programs at both campuses, develop certificates/badges for unique courses offered at the sister campus; badge=9 credit hours (3 courses); ex., Comm Studies as a pilot
3. Share high impact service learning practices across campuses
4. Honors programs share "themes" and list of speakers across campuses

College of Arts and Sciences (CAS)
Criminal Justice (UG & G)
Biological Sciences
Chemistry
Public Administration and Policy Analysis (G)
Mass Communications (UG& G)
School of Business (SOB)
MBA (online and flex)
Business Administration (UG)
Accountancy (UG & G)
School of Dental Medicine (SDM)
Doctor of Dental Medicine (D)
School of Education, Health and Human Behavior (SOEHHB)
Psychology (UG & G)
Exercise Science (UG & G)
Elementary Education (UG)
College Student Personnel Administration (G)
School of Engineering (SOE)
Computer Science (UG & G)
Mechanical Engineering (UG & G)
School of Nursing (SON)
Traditional (UG)
RN to BS (UG, accelerated)
Healthcare and Nursing Administration (G)
Healthcare and Nursing Administration / Healthcare Informatics (G)
Nurse Educator (G)
Doctor of Nursing Practice (D)
Family Nurse Practitioner (D)
Nurse Anesthesia (D)
Post-Master's Doctor of Nursing Practice (D)
Psychiatric Mental Health Nurse Practitioner (D)
School of Pharmacy (SOP)
Doctor of Pharmacy (D)
Other Notable Programs:
Speech Language Pathology (G) (SOECASHHB)**
Art Therapy Counseling (G) (CAS) **
Integrative Studies in Leadership in Organization (online degree completion)
*It should also be noted that several of our highest enrolled programs are at capacity
without additional investment (computer science, psychology, among others).
**These programs have capped enrollment and are highly selective.

SIUE's Program Planning Highlights

EXPANSION OF NURSING

The growing demand for practitioners in nursing and other areas of healthcare leads our focus on healthcare professions more broadly, and nursing specifically. EMSI data shows that the fastest growing and most competitive occupations projected through 2024 in our 60-mile radius requiring a Bachelor's degree are in Healthcare Practitioners & Technical (expected growth at 6%). Our Accelerated Option for RN to BS in Nursing and the more recent addition of the Psychiatric Mental Health Nurse Practitioner specialization and post-master's certificate within our current DNP, are examples of programs we have launched to meet these demands.

In order to meet the needs for students in the southern and central Illinois region to complete their baccalaureate degree in nursing, the SIUE School of Nursing (SON) hopes to expand its accelerated RN-BS program and enhancing partnerships with community colleges and hospital systems. The RN to BS program at SIUE is affordable, respected in the field, and dedicated to the needs of the State and region. The SON can enhance and extend its partnerships with community colleges building on existing articulation agreements and enhancing the relationships with these partners to create more seamless and affordable pathways for community college graduates. SIUE has articulation agreements or is forging new relationships with community colleges such as Lewis and Clark Community College, Southwestern Illinois Community College, Southeastern Illinois College, John A Logan Community College, Kaskaskia and Shawnee Community College to name only a few.

SIUE continues to offer high quality and in-demand on-ground traditional baccalaureate nursing program and other options at the Edwardsville campus. (SIUE is currently phasing out the regional program on the SIUC campus.) SIUE anticipates that there will be additional expansion opportunities in Nursing and the Health Sciences broadly with the construction of the new Health Sciences Complex and the increased need for diverse health services graduates.

PHYSICAL THERAPY/OCCUPATIONAL THERAPY

(Note: Although these new units of instructions were approved within the SIUE campus, the changing conditions within the System suggests that we need additional consideration and work now.)

Another area in which we foresee growth and expansion of our academic offerings in relations to the healthcare professions is the Doctorate of Physical Therapy and Occupation Therapy Programs. As data demonstrates, there is a shortage of physical therapists in Illinois

and nationwide.[1] According to the Bureau of Labor Statistics, Illinois' projected job growth for physical therapists is 22% from 2016 to 2026. Moreover, our competitive analysis also shows that there are currently 7 physical therapy programs offering the DPT degree in Illinois, all of which are serving a different region of the state of Illinois compared to SIUE. Additionally, there is only one school in the St. Louis area that offers a 4+3 (admission after earning a bachelors) DPT program and many students are required to move to a different geographic location for physical therapy school. A similar outlook exists for the Doctorate in Occupational Therapy, for which, according to the Bureau of Labor Statistics, Illinois shows a projected job growth of 20% from 2016 to 2026. There are currently only four Occupational Therapy programs offering the OTD degree in Illinois all of which are serving a different region of the state of Illinois compared to SIUE.

The historical and institutional context of the program is focused around the university's growth in the health sciences to meet the need of the region by offering excellent programs that meet economic demand. When SIUE developed its proposal, there was an absence of DPT/DOT programs in the southern part of the state. Given SIUC's expansion, SIUE will work collaboratively within the system to consider next steps. SIUE understands that it can play an important role in offering the DPT and DOT programs to meet the needs of the region. The DPT program was slated to be within the Department of Applied Health, which is currently part of the School of Education, Health and Human Behavior and the program can share resources within the department and School of Education, Health and Human Behavior and with the School of Dental Medicine. If we move forward, the program curriculum will incorporate core signature inter-professional (IPE) competencies according to the Interprofessional education collaborative (IPEC). As part of the IPE experience students will collaborate with other disciplines within the health sciences (e.g. exercise science, nutrition, public health, speech pathology, dental medicine, pharmacy, nursing, medicine) and social sciences (e.g. psychology, sociology, social work), thus offering opportunities for interdisciplinary collaborations as we grow our health sciences programs.

CYBERSECURITY

Computer and Mathematical jobs are also expected to growth 5% in our immediate region as per EMSI data looking at demand in the local market. Cybersecurity has been identified as a top program of interest for potential employers and students in our area as it relates to

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[1] Bureau of Labor Statistics, Occupational Outlook Handbook, Retrieved from
https://www.bls.gov/ooh/healthcare/occupational-therapists.htm

areas of expertise in our institution, including in the area of Computer Science, Mathematics, and Computer Management and Information Systems. In response of this demand, our Specialization in Cybersecurity for the B.A./B.S. in Business Administration was recently approved and we are offering classes in the 20-21 academic year. Additionally, the School of Engineering is noting a market demand in the area of cybersecurity. The Bureau of Labor Statistics shows this as a growing area of employment. A Cybersecurity Engineering degree can be offered to help students develop an intrinsic understanding of secure system design and development by taking an interdisciplinary technical approach to cybersecurity education, potentially making the SIUE program one of a handful of similar degree programs nationwide. The vast majority of degree programs name bearing "cybersecurity" are often significantly biased towards nontechnical aspects (e.g., ethics, policies, compliances, risk analysis, planning and management, usage, etc.), and often geared towards various certificate paths. Consequently, graduates of such programs often require years of additional training to make them eligible for most cybersecurity jobs. The proposed SIUE degree, on the other hand, will be built bottom-up to facilitate an applied hands-on education that will focus on proficiency in cybersecurity through curricular content that includes essential theoretical and conceptual knowledge, and opportunities to develop practical skills supporting the application of that knowledge through a rigorous, healthy blend of core concepts in Computer Science (CS), Electrical and Computer Engineering (ECE), as well as the foundational mathematics. By its very nature, in addition to cybersecurity careers, graduates of such a program will be also highly qualified for many closely related careers in software development, hardware engineering, communications, and network engineering.

A 2015 cybersecurity job market Intelligence report by Burning Glass points out that 26% of cybersecurity job postings are for Security Engineers. According to the same report, the state of Illinois had the 5th largest number of cybersecurity job postings nationwide at a nation high 163% posting growth between 2010 and 2014. The interactive map by cyberseek (see https://www.cyberseek. org/heatmap.html) lists over 300,000 active cybersecurity job openings in the U.S.; the top cybersecurity job titles requested by employers within the cybersecurity job market are Cybersecurity Engineer followed by Cybersecurity Analyst.

Table 2 lists the U.S. Bureau of Labor Statistics (BLS) future workforce projection data (2016-26) for several occupation profiles on their Labor Statistics Occupational Outlook Handbook. Among these, the 15-1122 Information Security Analysts profile provides the closest match

to the graduates of this program. Further information on this particular occupation can be found at https://www.bls.gov/oes/current/oes151122.htm. Due to the inherent cross-cutting nature of cybersecurity (between Software, Hardware, and Network Communication), several other occupation profiles – 15-1143 Computer Network Architects, 15-1199 Computer Systems Engineers/Architects, 15-1142 Network and Computer Systems Administrators, and 17-2061 Computer Hardware Engineers – also provide close (partial) matches. A Bachelor's degree is the typical entry-level education for all these occupations. For all practical purposes, it is fair consider that the graduates of the proposed degree will possess an overlapping skills-set of all of the above-mentioned occupation profiles.

Table 3 lists Illinois Department of Employment Security long term employment projections (2016-26) for the same set of occupations. Data projects 1,007 new job openings for Information Security Analysts in Illinois during this span, with an average of over 80 new openings per year. State of Illinois projection trends mimic that of national projection trends where Information Security Analysts career is projected to have the largest percentage change by 2026. Moreover, as of May 2019 BLS data, Illinois had the 6th highest employment level for Information Security Analysts in the country (see Figure 2 below). These statistics clearly demonstrate the national and state-level unmet workforce needs in cybersecurity, and a clear projection of employment opportunities in the foreseeable future.

Table 2: *The U.S. Bureau for Labor Statistics occupational projections. Table lists 2016 employment, 2026 projected employment, projected change in employment in 2016-26, and projected percent change in employment 2016-26.* **Data source:** https://data.bls.gov/projections/occupationProj

Occupation Title	2016 Employment	2026 Employment	Employment Change	Percentage Change
15-1122 Information Security Analysts	100,000	128,500	28,500	28.5%
15-1143 Computer Network Architects	162,700	173,200	10,500	6.5%
15-1199 Computer Systems Engineers/Architects§	287,200	313,800	26,600	9.3%
15-1142 Network and Computer Systems Administrators	391,300	415,300	24,000	6.1%
17-2061 Computer Hardware Engineers	73,600	77,600	4,000	5.5%

Security Analysts is the <u>fastest average</u> for **all** occupations tracked by BLS.

Table 3: *Illinois Department of Employment Security Long Term Employment Projections. Table lists 2016 estimated employment, 2026 projected employment, projected change in employment in 2016-26, and projected percent change in employment 2016-26.* **Data source:** http://www.ides.illinois.gov/LMI/Pages/Employment_Projections.aspx
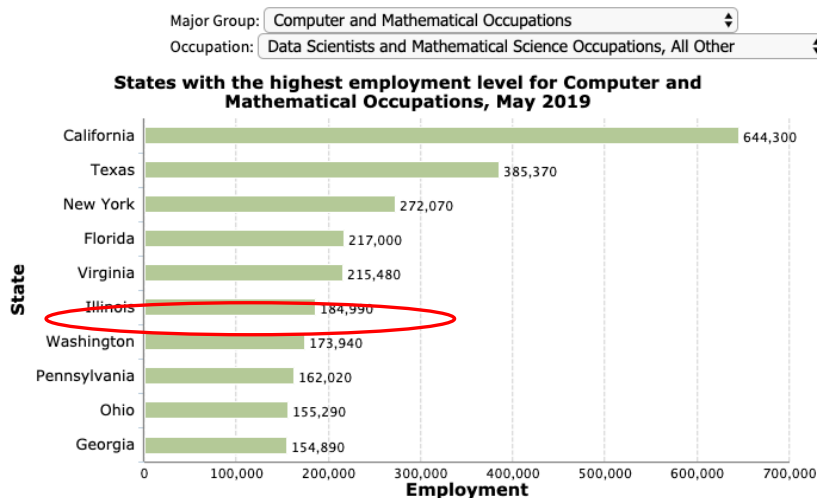
Occupation Title	2014 Employment	2024 Employment	Employment Change	Percentage Change
15-1122 Information Security Analysts	4,400	5,407	1,007	22.89%
15-1143 Computer Network Architects	5,614	5,984	370	6.59%
15-1199 Computer Systems Engineers/Architects§	15,493	16,808	1,315	8.49%
15-1142 Network and Computer Systems Administrators	14,421	15,084	663	4.60%
17-2061 Computer Hardware Engineers	1,426	1,597	171	11.99%

Charts of the states with the highest employment level for each occupation, May 2019

Major Group: Computer and Mathematical Occupations

Occupation: Data Scientists and Mathematical Science Occupations, All Other

States with the highest employment level for Computer and Mathematical Occupations, May 2019

State	Employment
California	644,300
Texas	385,370
New York	272,070
Florida	217,000
Virginia	215,480
Illinois	184,990
Washington	173,940
Pennsylvania	162,020
Ohio	155,290
Georgia	154,890

Source: Bureau of Labor Statistics

GEOSPATIAL AND DATA ANALYTICS

Geospatial analysis and data analytics (or geospatial data science) are also high priorities for our ongoing academic planning efforts and align with regional, national and international needs. EMSI data predicts a 5% growing demand for these professions in our immediate area so we continue to focus our attention on these academic programs. SIUE is a recognized leader in this area, with significant opportunities for expansion of relations within the region. The Provost recently served on the GeoFutures Advisory Board for the St. Louis Region to develop a roadmap for establishing the St. Louis region as a national hub in this area. SIUE'S Laboratory for Applied Spatial Analysis (LASA) and the newly approved Center for Predictive Analytics (C-PAN) are in place to support academic and research activities related to these fields. Our proximity to Scott AFB, the need for logistics support and adjacent occupations, our relationship with the expanding NGA, and our relationship to the STL GeoFutures movement support also these initiatives. Funding will be required to support additional faculty lines and computer labs.

FORENSIC SCIENCES

Currently, SIUE offers an interdisciplinary minor in Forensic Science. In an effort to explore further development of a Forensic Sciences program and expand the academic offerings beyond our current minor, we see the development of an accredited graduate Forensic Sciences program as another addition to the interdisciplinary nature of the health sciences initiative at SIUE. This opportunity builds on our relationship with the Illinois State Police and other external partners.

Forensic Sciences focuses on the application of the physical, biomedical, and social sciences to the analysis and evaluation of physical evidence, human testimony and criminal suspects and by its curriculum design Includes instruction in forensic medicine, forensic dentistry, anthropology, psychology, entomology, pathology, forensic laboratory technology and autopsy procedures, DNA and blood pattern analysis, crime scene analysis, crime scene photography, fingerprint technology, document analysis, witness and suspect examination procedures, applicable law and regulations, and professional standards and ethics. We are particularly interested in developing a program which can build upon our available resources, specifically in the department of Anthropology, Biological Sciences, Chemistry,

Computer Science, Computer System Management, and Criminal Justice, but also launch collaborations with university partners such as the University Museum, the School of Dental Medicine and the School of Nursing. Given that our primary mission is to serve the people of Illinois, it is clearly desirable to consider the needs of the state when determining what would constitute a rigorous education in forensic sciences. The ISP website (http://www.isp.state.il.us/forensics/) indicates that Forensic Scientist Trainees at the ISP must have an undergraduate degree in forensic science or one of the natural sciences. The Forensic Sciences degree will broaden the choices of students coming to SIUE as a destination for pursuing the health and biomedical sciences. In addition, the unique geographic and jurisdictional makeup of our region lend themselves to successful collaborations with new training opportunities in development with the Illinois State Crime Lab in Belleville, IL as well possibility to expand the reach of our training collaborations to urban and border jurisdictions in rural and underserved regions including southern Illinois and areas such as East St. Louis.