

**APPROVED**  
**JUNE 8, 2021**

June 8, 2021

**NEW UNITS OF INSTRUCTION, PUBLIC SERVICE,  
AND RESEARCH AT PUBLIC UNIVERSITIES**

**Submitted for:** Action.

**Summary:** This item requests approval of five degree programs at two public universities.

**Action Requested:** That the Illinois Board of Higher Education approve the following:

University of Illinois Springfield

- Master of Science in Cybersecurity Management in the Central Region
- Master of Science in Healthcare Informatics in the Central Region
- Master of Science in Human Resource Management in the Central Region

University of Illinois Urbana-Champaign

- Master of Science in Biomedical Image Computing in the Prairie Region
- Master of Science in Integrative Biology in the Prairie Region



STATE OF ILLINOIS  
BOARD OF HIGHER EDUCATION

**NEW UNITS OF INSTRUCTION, PUBLIC SERVICE,  
AND RESEARCH AT PUBLIC UNIVERSITIES**

By statute, the Illinois Board of Higher Education (IBHE) is responsible for approving new on-campus and off-campus units of instruction, organized research, and public service, and units of administration proposed by public university governing boards. The Board's approval criteria, defined in rules adopted for administering the statute, addresses university mission, academic control, faculty and staff, support services, financial resources, student demand, curriculum, statewide need, and congruence with Board policies and priorities. In addition to the approval criteria in rules, each new program was reviewed for its contributions to the goals of *The Illinois Public Agenda for College and Career Success*, which sets forth new priorities to guide Illinois higher education. Staff recommendations are based on analyses of application materials and responses to staff questions, and, for advanced degree programs, recommendations of external consultants.

**Executive Summary – Public Institutions**

University of Illinois Springfield

- Master of Science in Cybersecurity Management in the Central Region

The University of Illinois Springfield (UIS or the University) requests authorization to offer a Master of Science in Cybersecurity Management in the Central Region. The proposed program is designed to provide advanced knowledge and training to develop leadership, analytical thinking, and management skills in cybersecurity management. The MS in Cybersecurity Management consists of ten courses totaling 30 credit hours. All courses will develop key competencies and prepare students for leadership positions as consultants and analysts in public, private, and non-profit sectors. There are policies in place to ensure faculty members possess the training, credentials, and qualifications to provide instruction in the proposed program. The University has sufficient library, technology, staff, and financial resources in place to support the program.

Approval request summary, including staff conclusion, follows in Attachment A.

- Master of Science in Healthcare Informatics in the Central Region

The University of Illinois Springfield (UIS or the University) requests authorization to offer an online Master of Science (MS) in Healthcare Informatics in the Central Region. The proposed program will provide students with advanced knowledge and training in healthcare informatics and prepare them to work in high-demand fields such as health data analytics and information systems in healthcare organizations. The MS in Healthcare Informatics consists of ten courses delivered in an eight-week format totaling 30 credit hours. The program has entry points in the fall and spring and is designed to be completed within 12 months. There are policies in place to ensure faculty members

possess the training, credentials, and qualifications to provide instruction in the proposed program. The University has sufficient library, technology, staff, and financial resources in place to support the program.

Approval request summary, including staff conclusion, follows in Attachment B.

- Master of Science in Human Resource Management in the Central Region

The University of Illinois Springfield (UIS or the University) requests authorization to offer a Master of Science in Human Resource Management in the Central Region. The proposed program consists of 30 credit hours of coursework delivered in an eight-week format that can be completed in 12 months. Building upon the current Human Resource Management graduate certificate program, the curriculum incorporates newly developed courses and cross-disciplinary electives. Graduates will be ready to step into human resource generalist or specialist roles, and they will also be prepared to obtain professional certifications through the Society for Human Resource Management (SHRM). There are policies in place to ensure faculty members possess the training, credentials, and qualifications to provide instruction in the proposed program. The University has sufficient library, technology, staff, and financial resources in place to support the program.

Approval request summary, including staff conclusion, follows in Attachment C.

#### University of Illinois Urbana Champaign

- Master of Science in Biomedical Image Computing in the Prairie Region

The University of Illinois Urbana Champaign (UIUC or the University) requests authorization to offer a Master of Science (MS) in Biomedical Image Computing in the Prairie Region. The proposed program is designed to provide advanced training in biomedical imaging science and modern machine learning for students who have an engineering or other quantitative undergraduate degree. The MS in Biomedical Image Computing is a non-thesis, 36-credit hour program to be completed in three semesters of full-time study and concluding with a capstone research project. Students will receive training in imaging systems and analysis, computational imaging, and machine learning, in preparation for an industry career. There are policies in place to ensure faculty members possess the training, credentials, and qualifications to provide instruction in the proposed program. The University has sufficient library, technology, staff, and financial resources in place to support the program.

Approval request summary, including staff conclusion, follows in Attachment D.

#### University of Illinois Urbana Champaign

- Master of Science in Integrative Biology in the Prairie Region

The University of Illinois Urbana Champaign (UIUC or the University) requests authorization to offer a Master of Science in Integrative Biology in the Prairie Region. The MS in Integrative Biology is a non-thesis, 32-credit hour program designed to be completed in one year of full-time study. Advanced coursework will cover such fields as organismal biology, behavioral ecology, anatomy and physiology, environmental science, bioinformatics, pathology, genomics, and mathematical modeling. Graduates will be prepared for professional school or future careers in

industry, government, or academia. There are policies in place to ensure faculty members possess the training, credentials, and qualifications to provide instruction in the proposed program. The University has sufficient library, technology, staff, and financial resources in place to support the program.

Approval request summary, including staff conclusion, follows in Attachment E.

The staff recommends adoption of the following resolutions:

*The Illinois Board of Higher Education hereby grants to University of Illinois Springfield authorization to grant the Master of Science in Cybersecurity Management in the Central Region, subject to the institution's implementation and maintenance of the conditions that were presented in its application and that form the basis upon which this authorization is granted.*

*The Illinois Board of Higher Education hereby grants to University of Illinois Springfield authorization to grant the Master of Science in Healthcare Informatics in the Central Region, subject to the institution's implementation and maintenance of the conditions that were presented in its application and that form the basis upon which this authorization is granted.*

*The Illinois Board of Higher Education hereby grants to University of Illinois Springfield authorization to grant the Master of Science in Human Resource Management in the Central Region, subject to the institution's implementation and maintenance of the conditions that were presented in its application and that form the basis upon which this authorization is granted.*

*The Illinois Board of Higher Education hereby grants to University of Illinois Urbana Champaign authorization to grant the Master of Science in Biomedical Image Computing in the Prairie Region, subject to the institution's implementation and maintenance of the conditions that were presented in its application and that form the basis upon which this authorization is granted.*

*The Illinois Board of Higher Education hereby grants to University of Illinois Urbana Champaign authorization to grant the Master of Science in Integrative Biology in the Prairie Region, subject to the institution's implementation and maintenance of the conditions that were presented in its application and that form the basis upon which this authorization is granted.*

## University of Illinois Springfield

**Proposed Degree Title in the Region of Authorization:** Master of Science in Cybersecurity Management in the Central Region

### *Projected Enrollments and Degrees:*

First Year Enrollment	Fifth Year Enrollment (or when fully implemented)	Degrees Awarded Fifth Year (or when fully implemented)
25	32	31

## Background

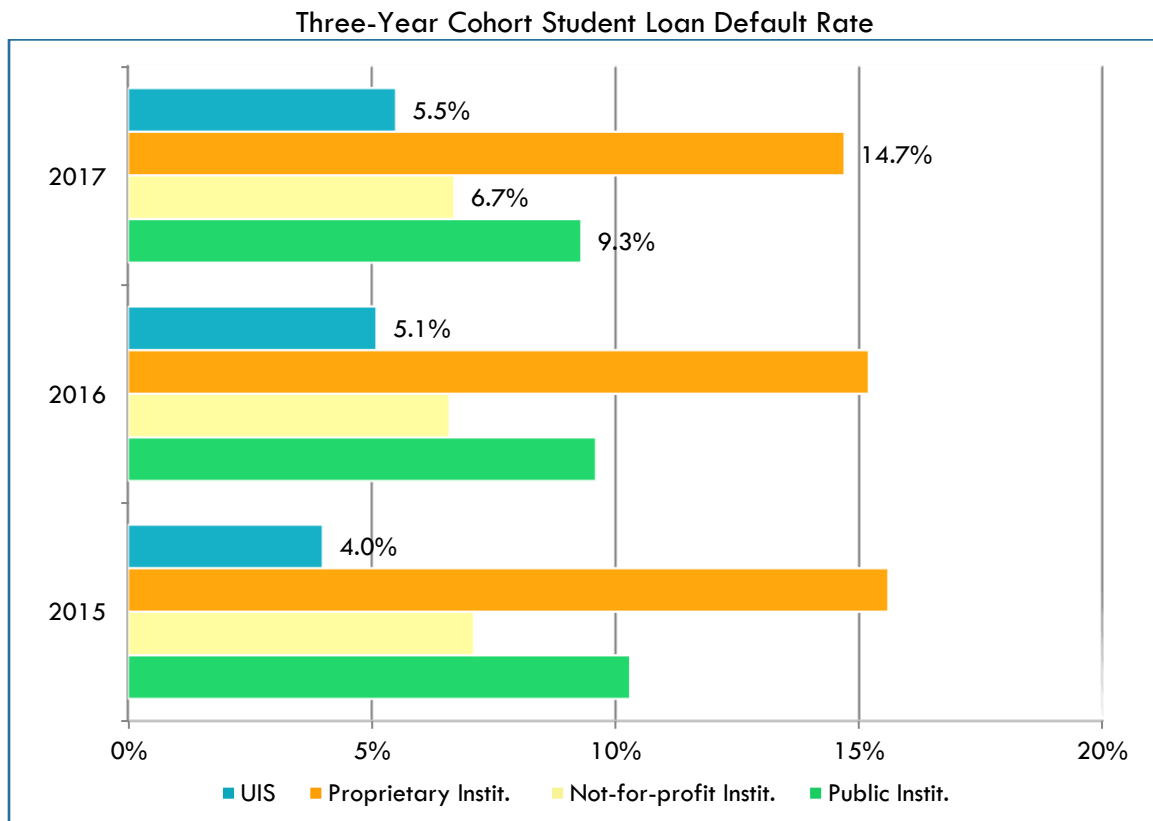
The University of Illinois Springfield (UIS or the University) is seeking authorization to offer a Master of Science in Cybersecurity in the Central Region. Currently, the Management Information Services department offer two graduate certificates in Cybersecurity Management and Cybersecurity Administration. Student demand in those certificates has been increasing over the past few years demonstrating interest from students to pursue graduate coursework in this area. This proposed program builds upon the successes of those graduate certificate programs while addressing an increased need for graduates in this field. The proposed program is designed to provide advanced knowledge and training to develop leadership, analytical thinking, and management skills in cybersecurity management. All courses will develop key competencies and prepare students for leadership positions as consultants and analysts in public, private, and non-profit sectors. The proposed program will be housed in the College of Business and Management.

## Institutional Data

*1050.30(b)(1)(H): Success in student progression and graduation rates across all existing approved programs, and success rates in programs preparing students for certification and licensure, shall be consistent with expectations in higher education and the appropriate related field of study. At a minimum, the Board shall consider these factors based on results for similar institutions. (i) Graduation rates, certificate and degree completion rates, retention rates, and pass rates for licensure and certification aligned with thresholds set by State nor national regulatory bodies. (ii) The success rate shall be, at a minimum, higher than those of the lowest quartile of these measures for similar Illinois institutions defined as open versus competitive enrollment institutions and primarily associate versus primarily baccalaureate granting institutions. Exceptions may be made to the lowest quartile if an institution is above the national average for these measures using the same comparison categories of institutions.*

This section includes information about institutional and student success measures for each institution seeking program approval. The institution's rates will be compared to Illinois institutions from within a select comparison group and against the national standards or averages. For a proposed undergraduate program, this section will include undergraduate graduation rates, first to second year retention rates, student loan default rates, and any applicable licensure passage rates. For a proposed graduate program, this section will primarily focus on student loan default data since this measure also includes graduate students in the calculation.

Undergraduate-related data fields are not provided because the University proposes to offer a new graduate program.



Source: National Center for Education Statistics (NCES), US Department of Education  
 Note: The national cohort default rate for fiscal year 2017 is 9.7%. A lower number is a positive indicator.

The three-year cohort student loan default rate is the percentage of a school's borrowers who enter repayment on certain Federal Family Education Loan Program or William D. Ford Federal Direct Loan Program loans during a particular federal fiscal year, October 1 to September 30, and default or meet other specified conditions prior to the end of the second following fiscal year.

**Need**

1050.30(a)(6): A) The unit of instruction, research or public service is educationally and economically consistent with the educational priorities and needs of the State of Illinois. B) The unit of instruction, research or public service meets a need that is not currently met by existing institutions and units of instruction, research or public service.

With the development of internet, cloud, mobile, and smart technologies, the threat of cybersecurity attacks has become a critical concern in public, private, and non-profit organizations. Correspondingly, the Bureau of Labor Statistics projects the demand for cybersecurity professionals to increase by 32 percent between 2018-2028. Cybersecurity-related careers including information security analysts, network and computer system administrators, database administrators, computer system administrators and software developers demonstrate a promising

job market in Illinois, nationwide and globally. According to the Illinois Department of Innovation and Technology, the State of Illinois Cybersecurity Strategy 2017-2019 indicates that the state is trying to increase cybersecurity capabilities and is striving to become one of the most cyber-secure states in the U.S. O\*NET Online shows the median salary for cybersecurity occupations in Illinois in 2018 ranged between \$95,950 to \$107,390 annually. Professionals in the field with a master's degree in cybersecurity have a significantly higher earning and growth pattern than average.

**The Illinois Public Agenda for College and Career Success**

The proposed MS in Cybersecurity Management program will address Goal 2 of the *Illinois Public Agenda for College and Career Success* goals to ensure college affordability for students, families, and taxpayers. Tuition amount for the 30-credit-hour proposed program will be \$10,972.50 for online students and \$9,967.50 for residential on ground students. According to the Best 25 Online Masters in Cybersecurity programs ranked by BestColleges, the cost of this program is much lower than the average of other cybersecurity programs. The program can be completed in 12 months, providing an affordable option for students to obtain a graduate degree while minimizing student loan debt.

**Comparable Programs in Illinois**

There are three comparable programs outside of the Chicago area that offer a Master of Science in Cybersecurity (Eastern Illinois – MBA & MS in Cybersecurity; Southern Illinois University Carbondale – MS in Cyber Security and Cyber Systems and Webster – MS in Cybersecurity). The proposed program differs because it is geared toward managerial activities of cybersecurity instead of the technical aspects.

Institution	Program Name	Sector
DePaul University	MS in Computer, Information, Net Security	Private not-for-profit
Eastern Illinois University	MBA/MS in Cybersecurity	Public
Illinois Institute of Technology	MAS in Cyber Forensics and Security	Private not-for-profit
Lewis University	Statistics and Computer Science	Private not-for-profit
Roosevelt University	MS in Cyber Security and Information Assurance	Private not-for-profit
Southern Illinois Carbondale	MS in Cybersecurity and Cyber Systems	Private not-for-profit
Webster University	MS in Cybersecurity	Private out-of-state

## Mission and Objectives

*1050.30(a)(1): A) The objectives of the unit of instruction, research or public service are consistent with the mission of the college or university. B) The objectives of the unit of instruction, research or public service are consistent with what the unit title implies.*

The program is consistent with the purpose, goals, objectives, and mission of the University. The requested degree title reflects the program's objectives and curriculum.

## Curriculum and Assessment

*1050.30(b)(1) [applicable only to units of instruction]: A) The caliber and content of the curriculum must assure that the objectives of the unit of instruction will be achieved. B) The breadth and depth of the curriculum must be consistent with what the title of the unit of instruction implies. C) The admission and graduation requirements for the unit of instruction must be consistent with the stated objectives of the unit of instruction. D) Institutions must show the capacity to develop, deliver and support academic programs. Procedures and policies that will assure the effective design, conduct and evaluation of the degree programs under the academic control of the institution must be developed. Assessment plans must demonstrate that the institution has identified clear and appropriate program and student learning goals and has defined appropriate outcomes. Appropriate data must be collected and may be requested by the Board to show the level of student learning that has occurred as a result of participation in the institution's programs of study.*

*1050.30(a)(2): The design, conduct and evaluation of the unit of instruction, research or public service are under the direct and continuous control of the sponsoring institution's established processes for academic planning and quality maintenance.*

## Admission Requirements

Applicants interested in the Master of Science in Cybersecurity Management program must complete the standard University application and meet the requirements set by the Graduate College. To be considered for admission to the program, applicants must have met the following criteria:

- Baccalaureate degree completed with a minimum GPA of 2.5/4.0
- TOEFL or IELTS scores provided if native language is not English.
- Personal essay submission.

## Curriculum

The Master of Science in Cybersecurity Management is a 30-credit hour program that includes a capstone course. The curriculum is comprised of 15 credit hours of coursework focused on cybersecurity from a management and policy perspective which includes courses in digital forensics, penetration testing and vulnerability assessment, cybersecurity policy, business continuity planning, and a capstone project that will allow students to practice learned theories and skills in solving real-world security problems. The other 15 credit hours of coursework cover management information systems, data communications and networking, information security, cybersecurity management, and compliance and legal issues. Courses will be offered in an eight-week format, and students can enter the program in the fall or spring semester. The MS in Cybersecurity Management is designed to be completed within 12 months.



## Assessment of Student Learning

The University of Illinois at Springfield has established processes to measure and analyze student learning outcomes. Assurance of student learning will be performed using rubrics embedded in the capstone course. Direct measures include discussions, cybersecurity analysis report, and capstone project including final report and presentation. The program director will collect the data and present results annually to faculty and the College's curriculum committee. If areas of improvement are identified, the director and faculty will develop strategies in specific courses or across the curriculum to address them. Indirect measures of student learning outcomes include student satisfaction surveys, job placement, retention, and employer assessment of student performance.

## Program Assessment

UIS has articulated a comprehensive plan to determine the overall effectiveness of its programs and to ensure students' needs are being met. The proposed MS in Cybersecurity Management will be evaluated by the program director using the review process that is currently in place by UIS for all academic programs to monitor the proposed program's performance, growth, and curricular quality. The proposed program will be administratively housed in the College of Business and Management. Data to aid program evaluation include direct and indirect measures of student performance data such as:

- Assurance of learning, as demonstrated in the curriculum assessment;
- External evaluation via employer feedback;
- Job placement;
- Student retention rates; and,
- Student satisfaction exit surveys

## Facilities (space, equipment, instructional materials)

*1050.30(a)(4): A) Facilities, equipment and instructional resources (e.g., laboratory supplies and equipment, instructional materials, computational equipment) necessary to support the high quality academic work in the unit of instruction, research or public service are available and maintained. B) Clinical sites necessary to meet the objectives of the unit of instruction, research or public service. C) Library holdings and acquisitions, owned or contracted for by the institution, that are necessary to support high quality instruction and scholarship in the unit of instruction, research and public service, are conveniently available and accessible, and can be maintained.*

Existing facilities are sufficient for implementing the proposed program. The University possesses adequate library resources, including textbooks, electronic journals, and database resources to support teaching and scholarly work. Faculty, staff, and students will have access to these resources, as well as curriculum and technology support services offered by UIS's Center for Online Learning, Research, and Service.

## Faculty and Staff

*1050.30(a)(3): A) The academic preparation and experience of faculty and staff ensure that the objectives of the unit of instruction, research or public service are met. B) The academic preparation and experience of faculty and staff, as evidenced by level of degrees held, professional experience in the field of study and demonstrated knowledge of the field, ensure that they are able to fulfill their academic responsibilities. At a minimum, faculty shall have a degree from an institution accredited by*

a U.S. Department of Education and/or Council for Higher Education Accreditation recognized accrediting body or a degree from another country evaluated for U.S. equivalency in the discipline they will teach or for which they will develop curricula at least one level above that of the courses being taught or developed. C) The involvement of faculty in the unit of instruction, research or public service is sufficient to cover the various fields of knowledge encompassed by the unit, to sustain scholarship appropriate to the unit, and to assure curricular continuity and consistency in student evaluation. E) Support personnel, including but not limited to counselors, administrators, clinical supervisors, and technical staff, that are directly assigned to the unit of instruction, research or public service, have the educational background and experience necessary to carry out their assigned responsibilities.

The University has identified institutional policies that ensure individuals hired possess the training, credentials, and other related qualifications. Faculty teaching in the proposed programs will have the appropriate qualifications. A formal faculty evaluation process is in place.

### **Fiscal and Personnel Resources**

1050.30(a)(5): A) The financial commitments to support the unit of instruction, research or public service are sufficient to ensure that the faculty and staff and support services necessary to offer the unit of instruction, research or public service can be acquired and maintained. B) Projections of revenues necessary to support the unit of instruction, research or public service are based on supportable estimates of state appropriations, local tax support, student tuition and fees, private gifts, and/or governmental grants and contracts.

The University has adequate faculty, staff, and other instructional resources to support the program.

### **Accreditation and Licensure**

1050.30(b)(3)[applicable only to units of instruction]: Appropriate steps shall be taken to assure that professional accreditation needed for licensure or entry into a profession as specified in the objectives of the unit of instruction is maintained or will be granted in a reasonable period of time.

No specialized accreditation or licensure is required for this program. However, the College of Business and Management where this program will be housed is accredited by the Association to Advance Collegiate Schools of Business (AACSB). The program will be evaluated through the AACSB accreditation review process.

### **Program Information**

1050.30(b)(2)[applicable only to units of instruction]: A) The information which the institution provides for students and the public shall include the following: i) An accurate description of the unit of instruction, including its objectives, length, and residency requirements if any; ii) Schedule of tuition, fees, and all other charges and expenses necessary for completion of the unit of instruction, cancellation and refund policies; iii) Student rights and responsibilities; iv) A statement regarding the transferability of college credits, including the fact that the decision to accept transfer credits is determined by the receiving institutions; v) A statement as to how the institution will advise students on the nature of the transfer process, including the importance of consulting with institutions to which the student may seek to transfer; vi) Evidence of arrangements for the transfer of courses or credits or both to institutional counterparts, when these arrangements exist; these arrangements are also known as articulation

agreements; vii) A statement of the institution’s most recent graduation rates and the number of graduates and enrollments as provided by the institution to the Integrated Postsecondary Education Data System (IPEDS) and any submission of data to satisfy Board reporting requirements; and viii) Other material facts concerning the institution and the unit of instruction as are likely to affect the decision of the student to enroll. B) The information listed in subsection (b)(2)(A) shall be available to prospective students prior to enrollment and shall be included in the institution’s catalog of programs.

Detailed information about the proposed program, including description of the admission policies, university policies, tuition, fees, and curriculum are provided in the proposal and will be published on the University’s website.

**Staff Conclusion**

The staff concludes that the Master of Science in Cybersecurity Management proposed by the University of Illinois Springfield meets the criteria to implement the Board of Higher Education Act (110 ILCS 205/et.seq.) as set forth in 23 Illinois Administrative Code, Ch. II, Section 1050.30, and the Illinois Board of Higher Education policies pertaining to assessment and accreditation or licensure.

**Proposed Degree Title in the Region of Authorization:** Master of Science in Healthcare Informatics in the Central Region

*Projected Enrollments and Degrees:*

First Year Enrollment	Fifth Year Enrollment (or when fully implemented)	Degrees Awarded Fifth Year (or when fully implemented)
25	32	31

**Background**

The University of Illinois Springfield (UIS or University) is seeking authorization to offer an online Master of Science (MS) in Healthcare Informatics in the Central Region. For more than five years, the Management Information Services Department has offered a Bachelor of Science in Management Information Systems with a concentration in healthcare informatics, and enrollments in that concentration have steadily increased over the years. The MBA program also collaborated with the Department of Public Health to offer a Graduate Certificate in Healthcare Management to provide business knowledge concepts to healthcare professionals or graduate students aspiring to pursue careers in healthcare organizations. This proposed program builds upon the successes of that certificate. The curriculum aligns with the core competencies of the proposed program to the American Medical Informatics Association. The online program will develop core competencies and prepare students for success in positions such as health informatics analyst; healthcare data analyst; healthcare information systems coordinator; and consultant in the private, public, and nonprofit sectors. The proposed program will be housed in the College of Business and Management.

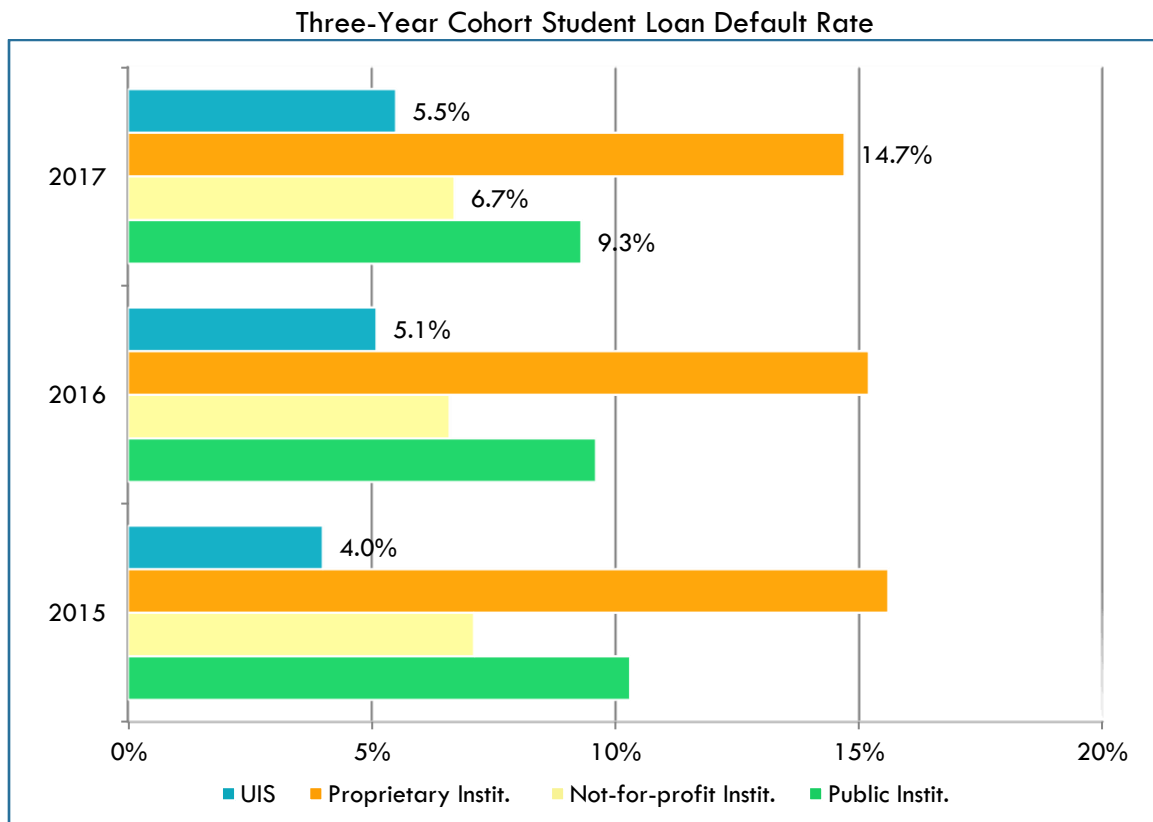


## Institutional Data

1050.30(b)(1)(H): Success in student progression and graduation rates across all existing approved programs, and success rates in programs preparing students for certification and licensure, shall be consistent with expectations in higher education and the appropriate related field of study. At a minimum, the Board shall consider these factors based on results for similar institutions. (i) Graduation rates, certificate and degree completion rates, retention rates, and pass rates for licensure and certification aligned with thresholds set by State nor national regulatory bodies. (ii) The success rate shall be, at a minimum, higher than those of the lowest quartile of these measures for similar Illinois institutions defined as open versus competitive enrollment institutions and primarily associate versus primarily baccalaureate granting institutions. Exceptions may be made to the lowest quartile if an institution is above the national average for these measures using the same comparison categories of institutions.

This section includes information about institutional and student success measures for each institution seeking program approval. The institution's rates will be compared to Illinois institutions from within a select comparison group and against the national standards or averages. For a proposed undergraduate program, this section will include undergraduate graduation rates, first to second year retention rates, student loan default rates, and any applicable licensure passage rates. For a proposed graduate program, this section will primarily focus on student loan default data since this measure also includes graduate students in the calculation.

Undergraduate-related data fields are not provided because the University proposes to offer a new graduate program.



Source: National Center for Education Statistics (NCES), US Department of Education  
Note: The national cohort default rate for fiscal year 2017 is 9.7%. A lower number is a positive indicator.

The three-year cohort student loan default rate is the percentage of a school's borrowers who enter repayment on certain Federal Family Education Loan Program or William D. Ford Federal Direct Loan Program loans during a particular federal fiscal year, October 1 to September 30, and default or meet other specified conditions prior to the end of the second following fiscal year.

## Need

1050.30(a)(6): A) *The unit of instruction, research or public service is educationally and economically consistent with the educational priorities and needs of the State of Illinois.* B) *The unit of instruction, research or public service meets a need that is not currently met by existing institutions and units of instruction, research or public service.*

Various healthcare informatics applications, such as electronic health records, electronic billing, and data analytics, are becoming critical to the development and success of health services. The Bureau of Labor Statistics (BLS) projects the demand for healthcare informatics professionals to increase by 11 percent between 2018-2028 which demonstrates a promising job market in Illinois, nationwide, and globally. Healthcare informatics professionals with a master's degree have significantly higher earnings and growth than average. A master's degree in healthcare informatics will prepare individuals for success in positions such as health informatics analyst, healthcare data analyst, healthcare information systems coordinator, and consultant in the private, public, and nonprofit sectors. The average pay in the US for healthcare informatics professionals ranged between \$67,000 and \$139,000 annually in 2020.

## ***The Illinois Public Agenda for College and Career Success***

The proposed MS in Healthcare Informatics program will address Goal 2 of the *Illinois Public Agenda for College and Career Success* goals to *ensure college affordability for students, families, and taxpayers*. Estimated tuition cost for the online 30-credit-hour proposed program is \$9,870. To help offset the cost of their education, full-time students enrolled in UIS graduate programs can apply for the Graduate Assistantship and Graduate Public Service Internship (GPSI) programs that include a monthly stipend and tuition waiver. Compared to other online master's programs in healthcare informatics ranked by the BestColleges, the proposed program at UIS is lower in cost and can be completed in one year.

## **Comparable Programs in Illinois**

There are seven comparable programs in the State of Illinois – five are located in the Chicago area. The proposed program provides a fully online program designed to be completed in one year at an affordable cost.

Institution	Program Name	Sector
DePaul University	MS in Health Informatics	Private-Not-for-Profit
Governors State University	MS Health Informatics	Public
Loyola University of Chicago	MS in Health Informatics	Private-Not-for-Profit
Northwestern University	MS in Medical Informatics	Private-Not-for-Profit
Southern Illinois University Carbondale	Master of Health Informatics	Public
Southern Illinois University Edwardsville	MS in Healthcare Informatics	Public
University of Illinois Chicago	MS in Health Informatics	Public

### Mission and Objectives

*1050.30(a)(1): A) The objectives of the unit of instruction, research or public service are consistent with the mission of the college or university. B) The objectives of the unit of instruction, research or public service are consistent with what the unit title implies.*

The program is consistent with the purpose, goals, objectives, and mission of the University. The requested degree title reflects the programs objectives and curriculum.

### Curriculum and Assessment

*1050.30(b)(1) [applicable only to units of instruction]: A) The caliber and content of the curriculum must assure that the objectives of the unit of instruction will be achieved. B) The breadth and depth of the curriculum must be consistent with what the title of the unit of instruction implies. C) The admission and graduation requirements for the unit of instruction must be consistent with the stated objectives of the unit of instruction. D) Institutions must show the capacity to develop, deliver and support academic programs. Procedures and policies that will assure the effective design, conduct and evaluation of the degree programs under the academic control of the institution must be developed. Assessment plans must demonstrate that the institution has identified clear and appropriate program and student learning goals and has defined appropriate outcomes. Appropriate data must be collected and may be requested by the Board to show the level of student learning that has occurred as a result of participation in the institution's programs of study.*

*1050.30(a)(2): The design, conduct and evaluation of the unit of instruction, research or public service are under the direct and continuous control of the sponsoring institution's established processes for academic planning and quality maintenance.*

## Admission Requirements

Applicants interested in the Master of Science in Healthcare Informatics program must complete the standard University application and meet the requirements set by the Graduate College. To be considered for admission to the program, applicants must have met the following criteria:

- Baccalaureate degree completed with a minimum GPA of 2.5/4.0
- TOEFL or IELTS scores provided if native language is not English.
- Official transcripts submitted.

## Curriculum

To earn the Master of Science in Healthcare Informatics, students will complete 30 credit hours of coursework which includes an exit exam. The curriculum is comprised of 10 courses with an emphasis on applications in the healthcare system including an overview of the U.S. healthcare system, managing healthcare operations, introduction to healthcare informatics, health information exchange and interoperability, database concepts, systems analysis and design, data mining, information systems security and privacy, data communication, and project management. Courses will be offered in an eight-week format and students can enter the program in the fall or spring semester, with the potential for additional entry points as enrollments increase. The MS in Healthcare Informatics is designed to be completed within 12 months.

## Assessment of Student Learning

The University of Illinois at Springfield has established processes to measure and analyze student learning outcomes. Assurance of student learning is embedded in the courses. Direct measures include assignments, projects, papers, presentations, and exams. The program director will collect the data and present results annually to faculty and the college's curriculum committee. If areas of improvement are identified, the director and faculty will develop strategies in specific courses or across the curriculum to address them. Indirect measures of student learning outcomes include student satisfaction surveys, end-of-course evaluations, grades, retention rates, and graduation rates.

## Program Assessment

The proposed program will be administratively housed in the College of Business and Management. The proposed MS in Healthcare Informatics will be evaluated using the review process that is currently in place by UIS for all academic programs to monitor the proposed program's performance, growth, and curricular quality. Data to aid program evaluation include direct and indirect measures of student performance data such as:

- Assurance of learning, as demonstrated in the curriculum assessment;
- External evaluation from an advisory board organized by the college Dean;
- Student satisfaction exit surveys;
- Student retention rates; and
- Job placement.

Program objectives will be evaluated by faculty and the college's curriculum committee systematically and periodically using rubrics. If areas of improvement are identified, solutions must be deployed, and those outcomes will be reviewed in the next assessment of learning cycle. UIS



maintains a rigorous assessment processes led by the Committee for the Assurance of Student Learning (CASL). This requires the program to prepare an initial assessment report in the third year of the program review cycle and it will be reviewed on the eight-year cycle established by the IBHE.

### **Facilities (space, equipment, instructional materials)**

*1050.30(a)(4): A) Facilities, equipment and instructional resources (e.g., laboratory supplies and equipment, instructional materials, computational equipment) necessary to support the high quality academic work in the unit of instruction, research or public service are available and maintained. B) Clinical sites necessary to meet the objectives of the unit of instruction, research or public service. C) Library holdings and acquisitions, owned or contracted for by the institution, that are necessary to support high quality instruction and scholarship in the unit of instruction, research and public service, are conveniently available and accessible, and can be maintained.*

Existing facilities are sufficient for implementing the proposed program. The University possesses adequate library resources, including textbooks, electronic journals, and database resources to support teaching and scholarly work. Faculty, staff, and students will have access to these resources, as well as curriculum and technology support services offered by UIS's Center for Online Learning, Research, and Service.

### **Faculty and Staff**

*1050.30(a)(3): A) The academic preparation and experience of faculty and staff ensure that the objectives of the unit of instruction, research or public service are met. B) The academic preparation and experience of faculty and staff, as evidenced by level of degrees held, professional experience in the field of study and demonstrated knowledge of the field, ensure that they are able to fulfill their academic responsibilities. At a minimum, faculty shall have a degree from an institution accredited by a U.S. Department of Education and/or Council for Higher Education Accreditation recognized accrediting body or a degree from another country evaluated for U.S. equivalency in the discipline they will teach or for which they will develop curricula at least one level above that of the courses being taught or developed. C) The involvement of faculty in the unit of instruction, research or public service is sufficient to cover the various fields of knowledge encompassed by the unit, to sustain scholarship appropriate to the unit, and to assure curricular continuity and consistency in student evaluation. E) Support personnel, including but not limited to counselors, administrators, clinical supervisors, and technical staff, that are directly assigned to the unit of instruction, research or public service, have the educational background and experience necessary to carry out their assigned responsibilities.*

The University has identified institutional policies that ensure individuals hired possess the training, credentials, and other related qualifications. Faculty teaching in the proposed programs will have the appropriate qualifications. A formal faculty evaluation process is in place.

### **Fiscal and Personnel Resources**

*1050.30(a)(5): A) The financial commitments to support the unit of instruction, research or public service are sufficient to ensure that the faculty and staff and support services necessary to offer the unit of instruction, research or public service can be acquired and maintained. B) Projections of revenues necessary to support the unit of instruction, research or public service are based on supportable*



*estimates of state appropriations, local tax support, student tuition and fees, private gifts, and/or governmental grants and contracts.*

The University has adequate faculty, staff, and other instructional resources to support the program.

### **Accreditation and Licensure**

*1050.30(b)(3)[applicable only to units of instruction]: Appropriate steps shall be taken to assure that professional accreditation needed for licensure or entry into a profession as specified in the objectives of the unit of instruction is maintained or will be granted in a reasonable period of time.*

No specialized accreditation or licensure is required for this program. The College will apply for specialized programmatic accreditation by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM).

### **Program Information**

*1050.30(b)(2)[applicable only to units of instruction]: A) The information which the institution provides for students and the public shall include the following: i) An accurate description of the unit of instruction, including its objectives, length, and residency requirements if any; ii) Schedule of tuition, fees, and all other charges and expenses necessary for completion of the unit of instruction, cancellation and refund policies; iii) Student rights and responsibilities; iv) A statement regarding the transferability of college credits, including the fact that the decision to accept transfer credits is determined by the receiving institutions; v) A statement as to how the institution will advise students on the nature of the transfer process, including the importance of consulting with institutions to which the student may seek to transfer; vi) Evidence of arrangements for the transfer of courses or credits or both to institutional counterparts, when these arrangements exist; these arrangements are also known as articulation agreements; vii) A statement of the institution's most recent graduation rates and the number of graduates and enrollments as provided by the institution to the Integrated Postsecondary Education Data System (IPEDS) and any submission of data to satisfy Board reporting requirements; and viii) Other material facts concerning the institution and the unit of instruction as are likely to affect the decision of the student to enroll. B) The information listed in subsection (b)(2)(A) shall be available to prospective students prior to enrollment and shall be included in the institution's catalog of programs.*

Detailed information about the proposed program, including description of the admission policies, university policies, tuition, fees, and curriculum are provided in the proposal and will be published on the University's website.

### **Staff Conclusion**

The staff concludes that the Master of Science in Healthcare Informatics proposed by the University of Illinois Springfield meets the criteria to implement the Board of Higher Education Act (110 ILCS 205/et.seq.) as set forth in 23 Illinois Administrative Code, Ch. II, Section 1050.30, and the Illinois Board of Higher Education policies pertaining to assessment and accreditation or licensure.

**Proposed Degree Title in the Region of Authorization:** Master of Science in Human Resource Management in the Central Region

*Projected Enrollments and Degrees:*

First Year Enrollment	Fifth Year Enrollment (or when fully implemented)	Degrees Awarded Fifth Year (or when fully implemented)
15	35	33

## **Background**

The University of Illinois Springfield (UIS or the University) is seeking authorization to offer a Master of Science in Human Resource Management (HRM) in the Central Region. The College of Business and Management offers a Bachelor of Business Arts with a concentration in Human Resource Management and an online graduate certificate program in Human Resource Management since 2011. The HRM certificate program has been attractive to MBA students interested in pursuing a career in the human resource area. The number of HRM graduate certificates awarded from 2014-2020 demonstrates an increased interest in a specialized credential in human resource management. The online and on-campus Master of Science in Human Resource Management degree will expand upon the graduate HRM certificate program incorporating cross-disciplinary electives and experiential learning. Graduates will be eligible to seek professional certification from the Society for Human Resource Management.

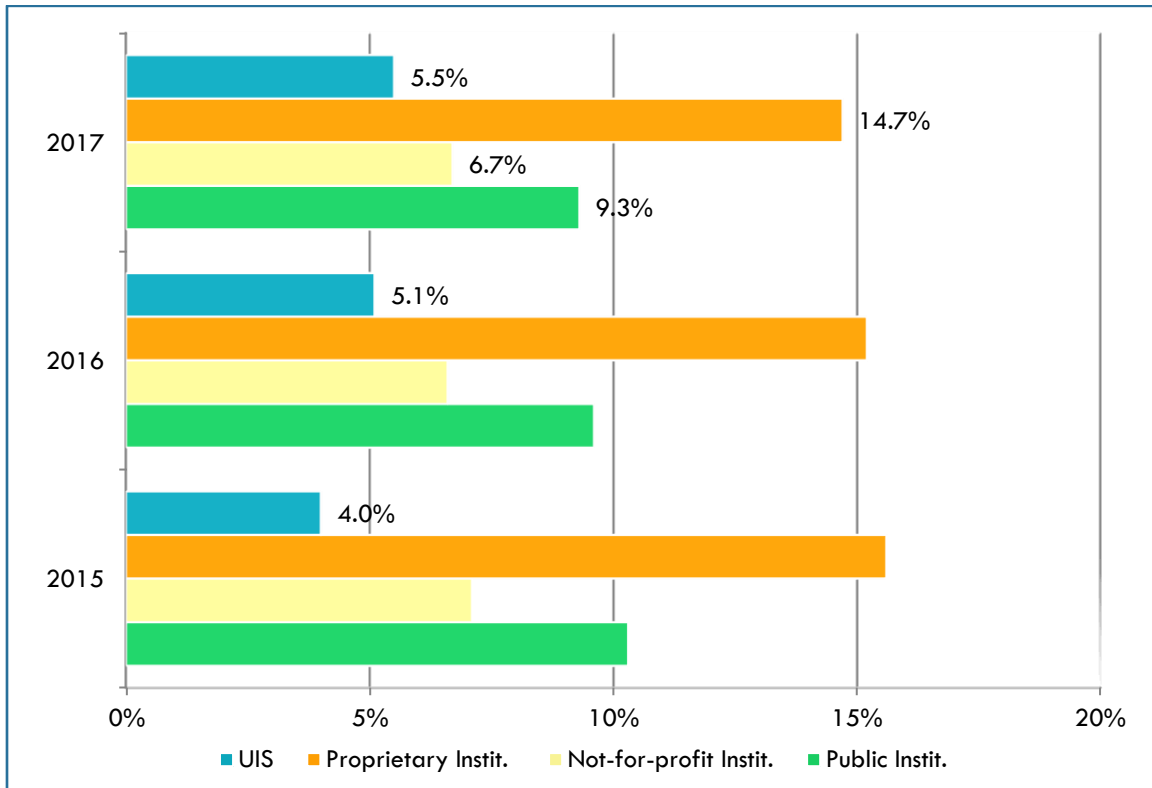
## **Institutional Data**

*1050.30(b)(1)(H): Success in student progression and graduation rates across all existing approved programs, and success rates in programs preparing students for certification and licensure, shall be consistent with expectations in higher education and the appropriate related field of study. At a minimum, the Board shall consider these factors based on results for similar institutions. (i) Graduation rates, certificate and degree completion rates, retention rates, and pass rates for licensure and certification aligned with thresholds set by State nor national regulatory bodies. (ii) The success rate shall be, at a minimum, higher than those of the lowest quartile of these measures for similar Illinois institutions defined as open versus competitive enrollment institutions and primarily associate versus primarily baccalaureate granting institutions. Exceptions may be made to the lowest quartile if an institution is above the national average for these measures using the same comparison categories of institutions.*

This section includes information about institutional and student success measures for each institution seeking program approval. The institution's rates will be compared to Illinois institutions from within a select comparison group and against the national standards or averages. For a proposed undergraduate program, this section will include undergraduate graduation rates, first to second year retention rates, student loan default rates, and any applicable licensure passage rates. For a proposed graduate program, this section will primarily focus on student loan default data since this measure also includes graduate students in the calculation.

Undergraduate-related data fields are not provided because the University proposes to offer a new graduate program.

Three-Year Cohort Student Loan Default Rate



Source: National Center for Education Statistics (NCES), US Department of Education  
 Note: The national cohort default rate for fiscal year 2017 is 9.7%. A lower number is a positive indicator.

The three-year cohort student loan default rate is the percentage of a school’s borrowers who enter repayment on certain Federal Family Education Loan Program or William D. Ford Federal Direct Loan Program loans during a particular federal fiscal year, October 1 to September 30, and default or meet other specified conditions prior to the end of the second following fiscal year.

**Need**

1050.30(a)(6): A) The unit of instruction, research or public service is educationally and economically consistent with the educational priorities and needs of the State of Illinois. B) The unit of instruction, research or public service meets a need that is not currently met by existing institutions and units of instruction, research or public service.

According to the Bureau of Labor Statistics, Human Resource Manager ranked as the 35th most promising job of the next decade based on current median wages and projected annual openings, suggesting the demand for human resource management is high and will continue to grow. O\*NET Online indicates that the employment outlook in human resource specialist and manager occupations is positive with five to 15 percent projected growth nationally from 2016-2026 and a median salary of \$61,000 to \$121,000 annually. The Illinois Department of Employment Security (IDES) 2019 projection mirrors this trend with a three to nine percent growth for the same time period. Human resource professionals with a master’s degree and professional certification or both have higher earning potential in the field.

## ***The Illinois Public Agenda for College and Career Success***

The proposed Master of Science in Human Resource Management will further Goal 1 to *increase educational attainment to match the best-performing states*. The College of Business Management has a long tradition of offering programs at the undergraduate and graduate levels that accommodate the needs of non-traditional students as well as graduate students who need to balance their professional, personal, and academic interests. The Master of Science in Human Resource Management will continue this tradition by offering both on ground and fully online options. This program in HRM will provide students with a degree that is not widely available in Illinois. Graduates will be prepared to become organizational leaders that are equipped to handle the complexities of human resources in the modern workplace.

### **Comparable Programs in Illinois**

Currently only three public universities offer a master's degree in human resources. Additionally, thirteen private institutions offer a master's level degree program in human resource management or development. All but three of those programs are located in the Chicago area. Greenville University is the only Illinois private institution offering this degree outside of the Chicago area. Two out-of-state institutions, Lindenwood University, and Webster offer their programs in the Southwestern Region.

<b>Institution</b>	<b>Program Name</b>	<b>Sector</b>
<b>DePaul University</b>	Master of Human Resource Management	Private Not-for-Profit
<b>DeVry University</b>	Master of Human Resource Management	Private For-Profit
<b>Governors State University</b>	MS in Human Resource Management	Public
<b>Greenville University</b>	MBA in Human Resource Management	Private Not-for-Profit
<b>Illinois Institute of Technology</b>	MS in Personnel and Human Resource Development	Private Not-for-Profit
<b>Loyola University</b>	MS in Human Resource Management	Private Not-for-Profit
<b>Lindenwood University</b>	MS in Human Resource Management	Out-of-State Private
<b>National Lewis University</b>	MS in Human Resource Management and Development	Private Not-for-Profit
<b>North Park University</b>	Master of Human Resource Management	Private Not-for-Profit
<b>Northeastern Illinois University</b>	MA in Human Resource Management	Public

<b>Northwestern University</b>	MBA in Human Resource Management	Private Not-for-Profit
<b>National Lewis University</b>	MS in Human Resource Management and Development	Private Not-for-Profit
<b>North Park University</b>	Master of Human Resource Management	Private Not-for-Profit
<b>Roosevelt University</b>	MS in Human Resource Management	Private Not-for-Profit
<b>University of Illinois Urbana-Champaign</b>	Master of Human Resources and Industrial Relations	Public
<b>Webster University</b>	MA in Human Resource Development	Out-of-State Private

### **Mission and Objectives**

*1050.30(a)(1): A) The objectives of the unit of instruction, research or public service are consistent with the mission of the college or university. B) The objectives of the unit of instruction, research or public service are consistent with what the unit title implies.*

The program is consistent with the purpose, goals, objectives, and mission of the University. The requested degree title reflects the programs objectives and curriculum.

### **Curriculum and Assessment**

*1050.30(b)(1) [applicable only to units of instruction]: A) The caliber and content of the curriculum must assure that the objectives of the unit of instruction will be achieved. B) The breadth and depth of the curriculum must be consistent with what the title of the unit of instruction implies. C) The admission and graduation requirements for the unit of instruction must be consistent with the stated objectives of the unit of instruction. D) Institutions must show the capacity to develop, deliver and support academic programs. Procedures and policies that will assure the effective design, conduct and evaluation of the degree programs under the academic control of the institution must be developed. Assessment plans must demonstrate that the institution has identified clear and appropriate program and student learning goals and has defined appropriate outcomes. Appropriate data must be collected and may be requested by the Board to show the level of student learning that has occurred as a result of participation in the institution's programs of study.*

*1050.30(a)(2): The design, conduct and evaluation of the unit of instruction, research or public service are under the direct and continuous control of the sponsoring institution's established processes for academic planning and quality maintenance.*

## Admission Requirements

Applicants interested in the Master of Science in Human Resource Management must complete the standard University application and meet the requirements set by the Graduate College. To be considered for admission to the program, applicants must have met the following criteria:

- Completion of a baccalaureate degree with a minimum GPA of 2.5/4.0 or substantial experience and responsibility in a field related to the area of study, as documented by a current resume.
- Submission of official undergraduate transcripts with degree documentation
- Provided TOEFL or IELTS scores if native language is not English.

## Curriculum

The Master of Science in Human Resource Management is a 30-credit hour program. The curriculum is comprised of five core courses that cover areas such as human resource management, acquiring and developing talent, performance management, human resource analytics, and strategic human resource management. To fulfill elective coursework requirements, students choose five electives from an approved list of courses including compensation and benefits, international human resource management, human resource information systems, collective bargaining, labor arbitration and dispute resolution, power, organizational behavior, and topics in human resource management. Curriculum content has been aligned with the Society for Human Resource Management (SHRM) content area and competencies, and as such will prepare students to obtain professional certification from SHRM. The MS in Human Resource Management is designed to be completed within 12 months with courses offered in an eight-week format.

## Assessment of Student Learning

The University of Illinois at Springfield has established processes to measure and analyze student learning outcomes. Assurance of student learning is embedded in the courses. Direct measures include case studies, exams, projects, assignments, and presentations. The curriculum and student performance will be constantly assessed and reviewed to maintain a practice of continuous improvement. Indirect measures of student learning outcomes include student satisfaction surveys, retention rates, and job placement numbers. As stipulated by the accreditation standards, course content will be reviewed based on the assessment results of the student learning outcomes on a periodic basis. Assessment data will be submitted to the UIS Committee on the Assurance of Student Learning.

## Program Assessment

The proposed MS in Human Resource Management will be evaluated by the Department of Management, Marketing, and Operations using the review process that is currently in place by UIS for all academic programs to monitor the proposed program's performance, growth, and curricular quality. Evidence of the performance of the program will be systematically and periodically gathered and will include:

- Assurance of learning, as demonstrated in the curriculum assessment;
- External evaluation from an organized advisory board;
- Student satisfaction exit surveys;
- Student retention rates; and

- Job placement.

The department chair and faculty will collaboratively complete a self-study and prepare a report that will be reviewed by the department, curriculum committee, and the Dean of the College for approval. The Graduate Council reviews and provides recommendations that will be forwarded to the Campus Senate and Provost for discussion. The Provost will make final recommendations to the department and the Dean, as well as make a report to the IBHE.

### **Facilities (space, equipment, instructional materials)**

*1050.30(a)(4): A) Facilities, equipment and instructional resources (e.g., laboratory supplies and equipment, instructional materials, computational equipment) necessary to support the high quality academic work in the unit of instruction, research or public service are available and maintained. B) Clinical sites necessary to meet the objectives of the unit of instruction, research or public service. C) Library holdings and acquisitions, owned or contracted for by the institution, that are necessary to support high quality instruction and scholarship in the unit of instruction, research and public service, are conveniently available and accessible, and can be maintained.*

Existing facilities are sufficient for implementing the proposed program. The University possesses adequate library resources with sufficient access to books, electronic journals, and database resources to support teaching and scholarly work. A librarian who specializes in business programs is available to assist as needed. Faculty, staff, and students will have access to these resources, as well as curriculum and technology support services offered by UIS's Center for Online Learning, Research, and Service.

### **Faculty and Staff**

*1050.30(a)(3): A) The academic preparation and experience of faculty and staff ensure that the objectives of the unit of instruction, research or public service are met. B) The academic preparation and experience of faculty and staff, as evidenced by level of degrees held, professional experience in the field of study and demonstrated knowledge of the field, ensure that they are able to fulfill their academic responsibilities. At a minimum, faculty shall have a degree from an institution accredited by a U.S. Department of Education and/or Council for Higher Education Accreditation recognized accrediting body or a degree from another country evaluated for U.S. equivalency in the discipline they will teach or for which they will develop curricula at least one level above that of the courses being taught or developed. C) The involvement of faculty in the unit of instruction, research or public service is sufficient to cover the various fields of knowledge encompassed by the unit, to sustain scholarship appropriate to the unit, and to assure curricular continuity and consistency in student evaluation. E) Support personnel, including but not limited to counselors, administrators, clinical supervisors, and technical staff, that are directly assigned to the unit of instruction, research or public service, have the educational background and experience necessary to carry out their assigned responsibilities.*

The University has identified institutional policies that ensure individuals hired possess the training, credentials, and other related qualifications. Faculty teaching in the proposed programs will have the appropriate qualifications. A formal faculty evaluation process is in place.



## **Fiscal and Personnel Resources**

*1050.30(a)(5): A) The financial commitments to support the unit of instruction, research or public service are sufficient to ensure that the faculty and staff and support services necessary to offer the unit of instruction, research or public service can be acquired and maintained. B) Projections of revenues necessary to support the unit of instruction, research or public service are based on supportable estimates of state appropriations, local tax support, student tuition and fees, private gifts, and/or governmental grants and contracts.*

The University has adequate faculty, staff, and other instructional resources to support the program. In preparation for program growth, the department intends to hire an additional tenure-track faculty member with expertise in human resource management.

## **Accreditation and Licensure**

*1050.30(b)(3)[applicable only to units of instruction]: Appropriate steps shall be taken to assure that professional accreditation needed for licensure or entry into a profession as specified in the objectives of the unit of instruction is maintained or will be granted in a reasonable period of time.*

No specialized accreditation or licensure is required for this program. Graduates will be eligible to seek professional certification from the Society for Human Resource Management.

## **Program Information**

*1050.30(b)(2)[applicable only to units of instruction]: A) The information which the institution provides for students and the public shall include the following: i) An accurate description of the unit of instruction, including its objectives, length, and residency requirements if any; ii) Schedule of tuition, fees, and all other charges and expenses necessary for completion of the unit of instruction, cancellation and refund policies; iii) Student rights and responsibilities; iv) A statement regarding the transferability of college credits, including the fact that the decision to accept transfer credits is determined by the receiving institutions; v) A statement as to how the institution will advise students on the nature of the transfer process, including the importance of consulting with institutions to which the student may seek to transfer; vi) Evidence of arrangements for the transfer of courses or credits or both to institutional counterparts, when these arrangements exist; these arrangements are also known as articulation agreements; vii) A statement of the institution's most recent graduation rates and the number of graduates and enrollments as provided by the institution to the Integrated Postsecondary Education Data System (IPEDS) and any submission of data to satisfy Board reporting requirements; and viii) Other material facts concerning the institution and the unit of instruction as are likely to affect the decision of the student to enroll. B) The information listed in subsection (b)(2)(A) shall be available to prospective students prior to enrollment and shall be included in the institution's catalog of programs.*

Detailed information about the proposed program, including description of the admission policies, university policies, tuition, fees, and curriculum are provided in the proposal and will be published on the University's website.

## **Staff Conclusion**

The staff concludes that the Master of Science in Human Resource Management proposed by the University of Illinois Springfield meets the criteria to implement the Board of Higher Education



Act (110 ILCS 205/et.seq.) as set forth in 23 Illinois Administrative Code, Ch. II, Section 1050.30, and the Illinois Board of Higher Education policies pertaining to assessment and accreditation or licensure.

## University of Illinois Urbana Champaign

**Proposed Degree Title in the Region of Authorization:** Master of Science in Biomedical Image Computing in the Prairie Region

### *Projected Enrollments and Degrees:*

First Year Enrollment	Fifth Year Enrollment (or when fully implemented)	Degrees Awarded Fifth Year (or when fully implemented)
10	40	40

## Background

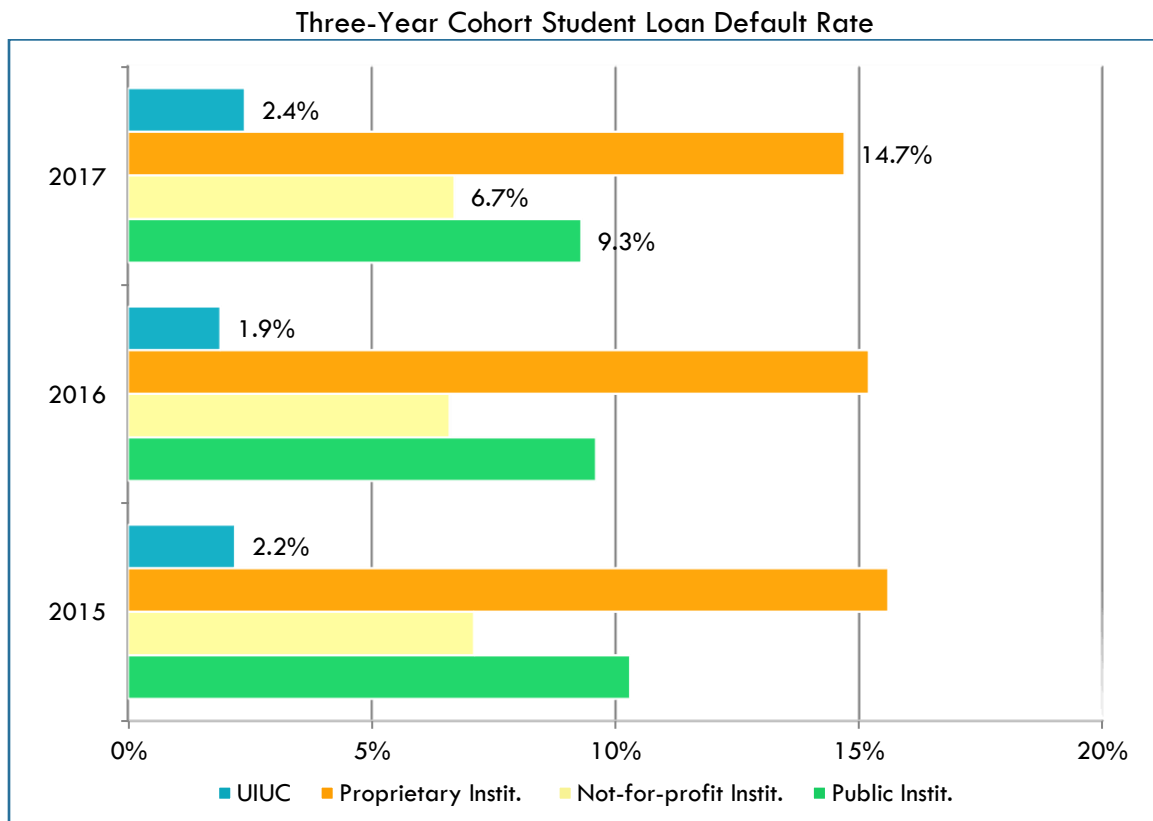
The University of Illinois Urbana Champaign (UIUC or the University) is seeking authorization to offer a Master of Science in Biomedical Image Computing in the Prairie Region. The Department of Bioengineering in the Grainger College of Engineering will be the primary unit involved in administering resources for the proposed program. Education in machine learning is traditionally a track or concentration in a computer science department, however it does not cover medical images or biomedical image data content. The purposeful design of the proposed program curriculum blends machine learning with imaging science. Faculty experts in the Department of Bioengineering are currently working with a wide range of modern biomedical imaging modalities and will provide the training in imaging and applied machine learning for the program. Students will obtain knowledge in the salient aspects of high-performance computing that will allow them to excel in industry positions.

## Institutional Data

*1050.30(b)(1)(H): Success in student progression and graduation rates across all existing approved programs, and success rates in programs preparing students for certification and licensure, shall be consistent with expectations in higher education and the appropriate related field of study. At a minimum, the Board shall consider these factors based on results for similar institutions. (i) Graduation rates, certificate and degree completion rates, retention rates, and pass rates for licensure and certification aligned with thresholds set by State nor national regulatory bodies. (ii) The success rate shall be, at a minimum, higher than those of the lowest quartile of these measures for similar Illinois institutions defined as open versus competitive enrollment institutions and primarily associate versus primarily baccalaureate granting institutions. Exceptions may be made to the lowest quartile if an institution is above the national average for these measures using the same comparison categories of institutions.*

This section includes information about institutional and student success measures for each institution seeking program approval. The institution's rates will be compared to Illinois institutions from within a select comparison group and against the national standards or averages. For a proposed undergraduate program, this section will include undergraduate graduation rates, first to second year retention rates, student loan default rates, and any applicable licensure passage rates. For a proposed graduate program, this section will primarily focus on student loan default data since this measure also includes graduate students in the calculation.

Undergraduate-related data fields are not provided because the University proposes to offer a new graduate program.



Source: National Center for Education Statistics (NCES), US Department of Education

Note: The national cohort default rate for fiscal year 2017 is 9.7%. A lower number is a positive indicator.

The three-year cohort student loan default rate is the percentage of a school's borrowers who enter repayment on certain Federal Family Education Loan Program or William D. Ford Federal Direct Loan Program loans during a particular federal fiscal year, October 1 to September 30, and default or meet other specified conditions prior to the end of the second following fiscal year.

## Need

1050.30(a)(6): A) The unit of instruction, research or public service is educationally and economically consistent with the educational priorities and needs of the State of Illinois. B) The unit of instruction, research or public service meets a need that is not currently met by existing institutions and units of instruction, research or public service.

According to Signify Research, analysis of the world market indicates projected growth for machine learning and artificial intelligence in medical imaging, comprising software for automated detection, quantification, decision support, and diagnosis with an estimated forecast of over \$3.5 billion in revenue by 2027. The creation and analysis of image data is playing an important role in biomedicine as well as other aspects of modern life. The U.S. Bureau for Labor Statistics projects 15.4 percent employment growth for computer and information research scientists between 2019

and 2029. The proposed MS in Biomedical Image Computing is designed to address the unmet need by providing a hands-on curriculum that integrates computational imaging and machine learning to solve real world problems. Given the demand for training in all fields related to diagnostic imaging, modern image analysis, and in real-world machine learning applications, immediate and sustained enrollment is expected in the proposed program.

### **The Illinois Public Agenda for College and Career Success**

The proposed Master of Science in Biomedical Image Computing program will further Goal 3 to *increase the number of high-quality post-secondary credentials to meet the demands of the economy and an increasingly global society*. There is an unmet demand in the biomedical imaging industry for personnel who are trained in biomedical imaging and machine learning principles. The proposed degree has been designed to meet this demand as students will be concurrently trained in fundamental imaging principles and modern machine learning in a way that traditional programs do not achieve.

The proposed MS in Biomedical Image Computing program will also address Goal 4 to *better integrate Illinois' educational, research, and innovation assets to meet economic needs of the state and its regions*. This program is intended to be both a hub and catalyst for academic and industry collaboration through the required capstone project. The department envisions that, by solving actual problems posed by industry partners, students will gain marketable experience and will also make inroads with their future employers via interactions with their faculty and industry project mentors.

### **Comparable Programs in Illinois**

There are three programs in Illinois that are similar to the proposed program. However, those programs have an applied focus on currently licensed technicians and traditional teaching approaches of image and signal processing.

<b>Institution</b>	<b>Program Name</b>	<b>Sector</b>
Southern Illinois University	Online Master of Science in Radiological Sciences	Public
Illinois Institute of Technology	Master of Engineering in Biomedical Imaging and Signals	Private
University of Illinois Chicago	Master of Science in Biomedical Visualization	Public

### **Mission and Objectives**

1050.30(a)(1): A) *The objectives of the unit of instruction, research or public service are consistent with the mission of the college or university.* B) *The objectives of the unit of instruction, research or public service are consistent with what the unit title implies.*

The program is consistent with the purpose, goals, objectives, and mission of the University. The requested degree title reflects the programs objectives and curriculum.

## Curriculum and Assessment

*1050.30(b)(1) [applicable only to units of instruction]: A) The caliber and content of the curriculum must assure that the objectives of the unit of instruction will be achieved. B) The breadth and depth of the curriculum must be consistent with what the title of the unit of instruction implies. C) The admission and graduation requirements for the unit of instruction must be consistent with the stated objectives of the unit of instruction. D) Institutions must show the capacity to develop, deliver and support academic programs. Procedures and policies that will assure the effective design, conduct and evaluation of the degree programs under the academic control of the institution must be developed. Assessment plans must demonstrate that the institution has identified clear and appropriate program and student learning goals and has defined appropriate outcomes. Appropriate data must be collected and may be requested by the Board to show the level of student learning that has occurred as a result of participation in the institution's programs of study.*

*1050.30(a)(2): The design, conduct and evaluation of the unit of instruction, research or public service are under the direct and continuous control of the sponsoring institution's established processes for academic planning and quality maintenance.*

### Admission Requirements

Applicants interested in the Master of Science in Biomedical Image Computing program must complete the University application and meet the minimum requirements set by the Graduate College. To be considered for admission to the program, applicants must have met the following criteria:

- Completed baccalaureate degree in an engineering or other quantitative discipline with a minimum GPA of 3.0/4.0 for the last two years of undergraduate study.
- Evidenced strong quantitative skills and serious interest in imaging and machine learning through personal statement.
- Submitted minimum TOEFL scores if native language is not English.

### Curriculum

To earn the Master of Science in Biomedical Image Computing, students will complete 36 credit hours of coursework in imaging systems and analysis, computational imaging, and machine learning over the period of three semesters. The curriculum is comprised of nine core courses and one elective option. This non-thesis program requires a capstone project instead in the final semester where students will have the opportunity to engage with project mentors and future employers to complete a project that utilizes machine learning methods and advanced computational tools to solve a problem related to bioimaging.

### Assessment of Student Learning

The University of Illinois at Urbana Champaign has established processes to measure and analyze student learning outcomes. Assurance of student learning will be performed using rubrics for course-based assessment data. Direct measures include coursework-based assessments and surveys, along with project presentations. Indirect measures of student learning include course evaluation, capstone mentor feedback, satisfaction surveys, exit interviews, as well as job and graduate school placement data. The program director will convene the program's governing committee monthly and annually to review curriculum and program planning. The committee will

review feedback and other collected data. Modifications will be discussed and implemented as needed to improve the program. Mid-semester, the program committee will review course assessments and meet with instructors to assess students' performance and progress. Students will have individual meetings with program committee to discuss progress and opportunities for improved learning.

### Program Assessment

All data associated with the proposed MS in Biomedical Image Computing will be evaluated annually by the program committee and shared with the department and advisory committee with the opportunity to provide feedback. Methods of program evaluation will include:

- Feedback from faculty and student in courses and capstone project work
- Curriculum committee and faculty review
- Student engagement in integrative learning activities
- Results of student learning assessments
- Employer, alumni, and other satisfaction survey results
- Percentage of students meeting or exceeding satisfactory ratings on learning outcome rubric assessments.
- Retention, graduation, and time-to-degree completion rates
- Job placement, career advancement, and graduate school acceptance rates

### Facilities (space, equipment, instructional materials)

*1050.30(a)(4): A) Facilities, equipment and instructional resources (e.g., laboratory supplies and equipment, instructional materials, computational equipment) necessary to support the high quality academic work in the unit of instruction, research or public service are available and maintained. B) Clinical sites necessary to meet the objectives of the unit of instruction, research or public service. C) Library holdings and acquisitions, owned or contracted for by the institution, that are necessary to support high quality instruction and scholarship in the unit of instruction, research and public service, are conveniently available and accessible, and can be maintained.*

Existing facilities are sufficient for implementing the proposed program. The University possesses adequate library resources with sufficient access to books, electronic journals, and database resources to support teaching and scholarly work.

### Faculty and Staff

*1050.30(a)(3): A) The academic preparation and experience of faculty and staff ensure that the objectives of the unit of instruction, research or public service are met. B) The academic preparation and experience of faculty and staff, as evidenced by level of degrees held, professional experience in the field of study and demonstrated knowledge of the field, ensure that they are able to fulfill their academic responsibilities. At a minimum, faculty shall have a degree from an institution accredited by a U.S. Department of Education and/or Council for Higher Education Accreditation recognized accrediting body or a degree from another country evaluated for U.S. equivalency in the discipline they will teach or for which they will develop curricula at least one level above that of the courses being taught or developed. C) The involvement of faculty in the unit of instruction, research or public service is sufficient to cover the various fields of knowledge encompassed by the unit, to sustain scholarship appropriate to the unit, and to assure curricular continuity and consistency in student evaluation. E)*

*Support personnel, including but not limited to counselors, administrators, clinical supervisors, and technical staff, that are directly assigned to the unit of instruction, research or public service, have the educational background and experience necessary to carry out their assigned responsibilities.*

The University has identified institutional policies that ensure academic professionals hired possess the training, credentials, and other related qualifications in order to provide instruction at the institution. Program administrators and faculty teaching in the proposed programs will have the appropriate qualifications. A formal faculty evaluation process is in place.

### **Fiscal and Personnel Resources**

*1050.30(a)(5): A) The financial commitments to support the unit of instruction, research or public service are sufficient to ensure that the faculty and staff and support services necessary to offer the unit of instruction, research or public service can be acquired and maintained. B) Projections of revenues necessary to support the unit of instruction, research or public service are based on supportable estimates of state appropriations, local tax support, student tuition and fees, private gifts, and/or governmental grants and contracts.*

The University has adequate faculty, staff, and other instructional resources in place to administer the proposed program. In preparation for program growth, the department intends to hire one or two additional full-time faculty within the next few years and a staff coordinator position.

### **Accreditation and Licensure**

*1050.30(b)(3)[applicable only to units of instruction]: Appropriate steps shall be taken to assure that professional accreditation needed for licensure or entry into a profession as specified in the objectives of the unit of instruction is maintained or will be granted in a reasonable period of time.*

No specialized accreditation or licensure is required.

### **Program Information**

*1050.30(b)(2)[applicable only to units of instruction]: A) The information which the institution provides for students and the public shall include the following: i) An accurate description of the unit of instruction, including its objectives, length, and residency requirements if any; ii) Schedule of tuition, fees, and all other charges and expenses necessary for completion of the unit of instruction, cancellation and refund policies; iii) Student rights and responsibilities; iv) A statement regarding the transferability of college credits, including the fact that the decision to accept transfer credits is determined by the receiving institutions; v) A statement as to how the institution will advise students on the nature of the transfer process, including the importance of consulting with institutions to which the student may seek to transfer; vi) Evidence of arrangements for the transfer of courses or credits or both to institutional counterparts, when these arrangements exist; these arrangements are also known as articulation agreements; vii) A statement of the institution's most recent graduation rates and the number of graduates and enrollments as provided by the institution to the Integrated Postsecondary Education Data System (IPEDS) and any submission of data to satisfy Board reporting requirements; and viii) Other material facts concerning the institution and the unit of instruction as are likely to affect the decision of the student to enroll. B) The information listed in subsection (b)(2)(A) shall be available to prospective students prior to enrollment and shall be included in the institution's catalog of programs.*

Detailed information about the proposed program, including description of the admission policies, university policies, tuition, fees, and curriculum are provided in the proposal and will be published on the University’s website.

**Staff Conclusion**

The staff concludes that the Master of Science in Biomedical Image Computing proposed by the University of Illinois Urbana Champaign meets the criteria to implement the Board of Higher Education Act (110 ILCS 205/et.seq.) as set forth in 23 Illinois Administrative Code, Ch. II, Section 1050.30, and the Illinois Board of Higher Education policies pertaining to assessment and accreditation or licensure.

**Proposed Degree Title in the Region of Authorization:** Master of Science in Integrative Biology in the Prairie Region

*Projected Enrollments and Degrees:*

First Year Enrollment	Fifth Year Enrollment (or when fully implemented)	Degrees Awarded Fifth Year (or when fully implemented)
5	30	25

**Background**

The University of Illinois Urbana Champaign (UIUC or the University) is seeking authorization to offer a Master of Science in Integrative Biology in the Prairie Region. The proposed program will allow students who have completed their Bachelor of Science to attain a post-baccalaureate degree through a non-thesis, coursework-based program. Currently, students at UIUC have the ability to complete a traditional, thesis-based MS degree in each of the School of Integrative Biology’s individual departments (Evolution, Ecology and Behavior; Entomology; Plant Biology) and interdisciplinary graduate programs (Program in Ecology, Evolution, and Conservation Biology; Teaching of Biological Science; Neuroscience). At this time, no opportunity exists for an MS degree in the field of integrative biology at UIUC. The proposed program will provide students the opportunity to enhance their analytical skill sets and prepare for professional school or a future career in the biotech industry without having to invest in a timely research thesis.

**Institutional Data**

*1050.30(b)(1)(H): Success in student progression and graduation rates across all existing approved programs, and success rates in programs preparing students for certification and licensure, shall be consistent with expectations in higher education and the appropriate related field of study. At a minimum, the Board shall consider these factors based on results for similar institutions. (i) Graduation rates, certificate and degree completion rates, retention rates, and pass rates for licensure and certification aligned with thresholds set by State nor national regulatory bodies. (ii) The success rate shall be, at a minimum, higher than those of the lowest quartile of these measures for similar Illinois institutions defined as open versus competitive enrollment institutions and primarily associate versus primarily baccalaureate granting institutions. Exceptions may be made to the lowest quartile if an*

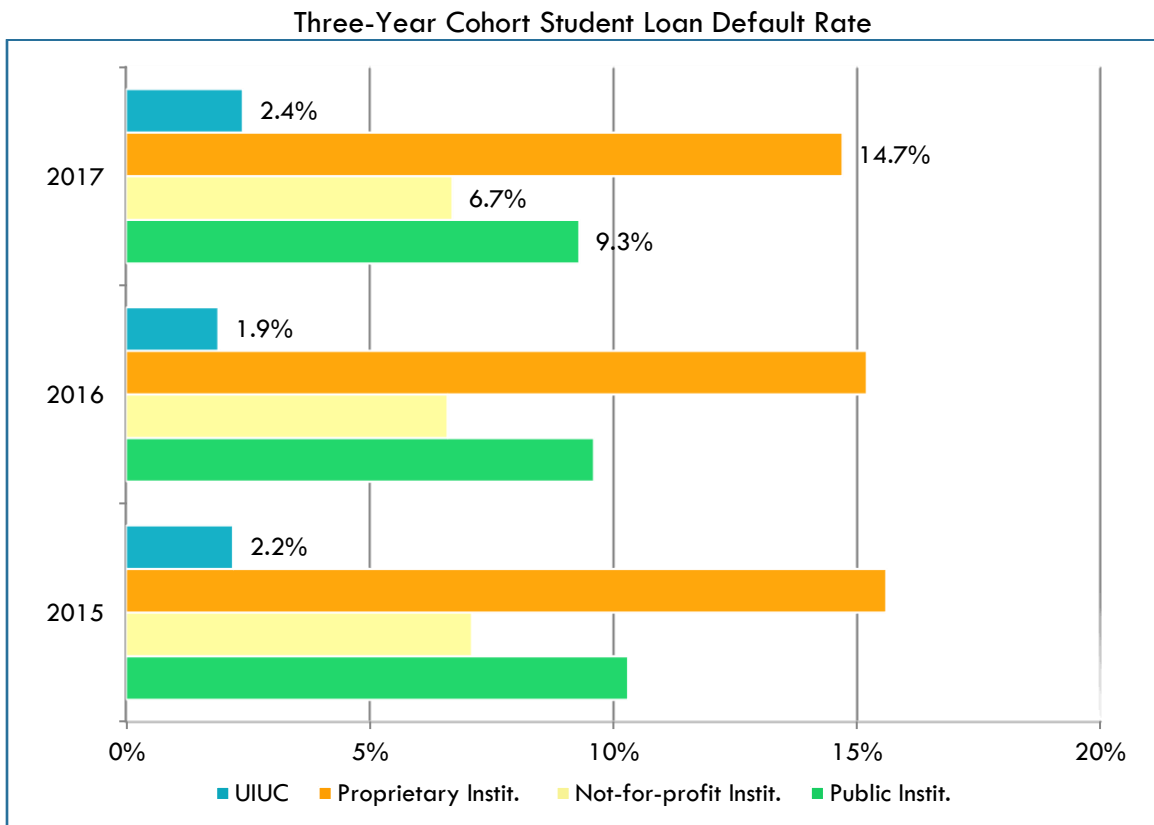




institution is above the national average for these measures using the same comparison categories of institutions.

This section includes information about institutional and student success measures for each institution seeking program approval. The institution’s rates will be compared to Illinois institutions from within a select comparison group and against the national standards or averages. For a proposed undergraduate program, this section will include undergraduate graduation rates, first to second year retention rates, student loan default rates, and any applicable licensure passage rates. For a proposed graduate program, this section will primarily focus on student loan default data since this measure also includes graduate students in the calculation.

Undergraduate-related data fields are not provided because the University proposes to offer a new graduate program.



Source: National Center for Education Statistics (NCES), US Department of Education  
 Note: The national cohort default rate for fiscal year 2017 is 9.7%. A lower number is a positive indicator.

The three-year cohort student loan default rate is the percentage of a school’s borrowers who enter repayment on certain Federal Family Education Loan Program or William D. Ford Federal Direct Loan Program loans during a particular federal fiscal year, October 1 to September 30, and default or meet other specified conditions prior to the end of the second following fiscal year.

## Need

*1050.30(a)(6): A) The unit of instruction, research or public service is educationally and economically consistent with the educational priorities and needs of the State of Illinois. B) The unit of instruction, research or public service meets a need that is not currently met by existing institutions and units of instruction, research or public service.*

The Bureau of Labor Statistics projects the demand for occupations in life, physical, and social sciences to increase by seven percent through 2026, a rate faster than average for all occupations. The proposed program will help students to develop skills in high demand in professional schools, research, and industry. Graduates of the proposed program will be prepared for competitive placement in professional schools and biotech careers through the development of strong laboratory skills and advanced-level coursework in specific areas of biology including organismal biology, behavioral ecology, and programming for genomics. Additionally, students will have access to the Graduate Career Development Office which will help them to showcase their valuable skillsets, further their connections with employers, and assist them with seeking out more meaningful and applicable employment to their skill sets. Lastly, feedback results from current undergraduate and prospective graduate students shows a demand for this type of program.

## The Illinois Public Agenda for College and Career Success

The proposed Master of Science in Integrative Biology program will further Goal 3 to *increase the number of high-quality post-secondary credentials to meet the demands of the economy and an increasingly global society*. In the field of integrative biology, students often need advanced degrees, additional lab and science communication skills, and career planning to increase their competitive advantage for future employment or academic pursuits. Through the proposed program, students will hone their laboratory and data analytics skills, giving them an edge over other candidates in the job market or professional school applicant pool.

The proposed MS in Integrative Biology program will also address Goal 4 to *better integrate Illinois' educational, research, and innovation assets to meet economic needs of the state and its regions*. This program serves to integrate educational, research and innovation assets by fostering connections between students, alumni, and employers in the field. Additionally, students will be exposed to a network of alumni from UIUC's integrative biology program through a required course that entails tailored mentoring, career development, and building employable skill sets useful for implementing a fulfilling career in science.

## Comparable Programs in Illinois

There are currently no public universities in Illinois that offer a non-thesis MS degree option in Integrative Biology.

## Mission and Objectives

*1050.30(a)(1): A) The objectives of the unit of instruction, research or public service are consistent with the mission of the college or university. B) The objectives of the unit of instruction, research or public service are consistent with what the unit title implies.*

The program is consistent with the purpose, goals, objectives, and mission of the University. The requested degree title reflects the programs objectives and curriculum.

### **Curriculum and Assessment**

*1050.30(b)(1) [applicable only to units of instruction]: A) The caliber and content of the curriculum must assure that the objectives of the unit of instruction will be achieved. B) The breadth and depth of the curriculum must be consistent with what the title of the unit of instruction implies. C) The admission and graduation requirements for the unit of instruction must be consistent with the stated objectives of the unit of instruction. D) Institutions must show the capacity to develop, deliver and support academic programs. Procedures and policies that will assure the effective design, conduct and evaluation of the degree programs under the academic control of the institution must be developed. Assessment plans must demonstrate that the institution has identified clear and appropriate program and student learning goals and has defined appropriate outcomes. Appropriate data must be collected and may be requested by the Board to show the level of student learning that has occurred as a result of participation in the institution's programs of study.*

*1050.30(a)(2): The design, conduct and evaluation of the unit of instruction, research or public service are under the direct and continuous control of the sponsoring institution's established processes for academic planning and quality maintenance.*

### **Admission Requirements**

Applicants interested in the Master of Science in Integrative Biology program must complete the University application and meet the minimum requirements set by the Graduate College. To be considered for admission to the program, applicants must have met the following criteria:

- Completed a baccalaureate degree from an accredited college or university with coursework in biology, chemistry, physics, calculus, and English composition.
- Earned a minimum GPA of 3.0/4.0 for the last 60 hours of undergraduate study.

### **Curriculum**

The Master of Science in Integrative Biology is a 32-credit hour program consisting of 12-14 hours of core curriculum, six to eight elective hours, and 12 hours of approved 500-level courses. Within the core curriculum, students must take at least one course from two of three disciplinary areas of integrative biology which consists of Organismal and Evolutionary Biology, Behavior, Ecology and the Environment, and Integrative Anatomy, Physiology and Molecular Biology. Additional requirements in the core courses include Science Communication Skills and one extra course with a laboratory and field component or both. Electives can be filled from an approved list of advanced courses or from the three disciplinary areas. The minimum 500-level hour requirement can be met by choosing from an approved list of courses. This non-thesis program is designed to be completed in one year. It will have both face-to-face and online course options, including advanced laboratory courses.

### **Assessment of Student Learning**

The University of Illinois at Urbana Champaign has established processes to measure and analyze student learning outcomes. Assurance of student learning will be performed using formative and summative assessments in each course. Direct measures of assessment include exams, written

reports, and end-of-class projects. Assessment of the learning outcomes within each course takes place throughout each semester. Indirect measures of student learning include end of semester course and instructor evaluation, individual student meetings, satisfaction surveys, exit interviews, as well as post-graduate destinations.

### Program Assessment

The program director will collect and produce a report of all assessment data associated with the proposed MS in Integrative Biology. This information will be shared annually with the School's Associate Director of Academic Affairs, members of the Executive Committee, faculty, and the Alumni Mentoring Coordinator. Based on results of the assessment work, course curricula may be revised, learning outcomes modified, and student mentoring improved. Methods of evaluation used to improve the curriculum, instruction, and overall quality of the program will include:

- Current student, employer, alumni, and other satisfaction survey results
- Numbers of students entering and graduating from the program.
- Time-to-degree completion rates
- Job placement, graduate school acceptance rates, and admission to professional schools

### Facilities (space, equipment, instructional materials)

*1050.30(a)(4): A) Facilities, equipment and instructional resources (e.g., laboratory supplies and equipment, instructional materials, computational equipment) necessary to support the high quality academic work in the unit of instruction, research or public service are available and maintained. B) Clinical sites necessary to meet the objectives of the unit of instruction, research or public service. C) Library holdings and acquisitions, owned or contracted for by the institution, that are necessary to support high quality instruction and scholarship in the unit of instruction, research and public service, are conveniently available and accessible, and can be maintained.*

Existing facilities and space are sufficient for implementing the proposed program. The University possesses adequate library resources with sufficient access to books, electronic journals, and database resources to support teaching and scholarly work.

### Faculty and Staff

*1050.30(a)(3): A) The academic preparation and experience of faculty and staff ensure that the objectives of the unit of instruction, research or public service are met. B) The academic preparation and experience of faculty and staff, as evidenced by level of degrees held, professional experience in the field of study and demonstrated knowledge of the field, ensure that they are able to fulfill their academic responsibilities. At a minimum, faculty shall have a degree from an institution accredited by a U.S. Department of Education and/or Council for Higher Education Accreditation recognized accrediting body or a degree from another country evaluated for U.S. equivalency in the discipline they will teach or for which they will develop curricula at least one level above that of the courses being taught or developed. C) The involvement of faculty in the unit of instruction, research or public service is sufficient to cover the various fields of knowledge encompassed by the unit, to sustain scholarship appropriate to the unit, and to assure curricular continuity and consistency in student evaluation. E) Support personnel, including but not limited to counselors, administrators, clinical supervisors, and technical staff, that are directly assigned to the unit of instruction, research or public service, have the educational background and experience necessary to carry out their assigned responsibilities.*

The University has identified institutional policies that ensure academic professionals hired possess the training, credentials, and other related qualifications in order to provide instruction at the institution. Program administrators and faculty teaching in the proposed programs will have the appropriate qualifications. A formal faculty evaluation process is in place.

### **Fiscal and Personnel Resources**

*1050.30(a)(5): A) The financial commitments to support the unit of instruction, research or public service are sufficient to ensure that the faculty and staff and support services necessary to offer the unit of instruction, research or public service can be acquired and maintained. B) Projections of revenues necessary to support the unit of instruction, research or public service are based on supportable estimates of state appropriations, local tax support, student tuition and fees, private gifts, and/or governmental grants and contracts.*

The University has adequate faculty, staff, and other instructional resources in place to administer the proposed program.

### **Accreditation and Licensure**

*1050.30(b)(3)[applicable only to units of instruction]: Appropriate steps shall be taken to assure that professional accreditation needed for licensure or entry into a profession as specified in the objectives of the unit of instruction is maintained or will be granted in a reasonable period of time.*

No specialized accreditation or licensure is required.

### **Program Information**

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Detailed information about the proposed program, including description of the admission policies, university policies, tuition, fees, and curriculum are provided in the proposal and will be published on the University's website.

## **Staff Conclusion**

The staff concludes that the Master of Science in Integrative Biology proposed by the University of Illinois Urbana Champaign meets the criteria to implement the Board of Higher Education Act (110 ILCS 205/et.seq.) as set forth in 23 Illinois Administrative Code, Ch. II, Section 1050.30, and the Illinois Board of Higher Education policies pertaining to assessment and accreditation or licensure.