ACADEMIC AFFAIRS

August 7, 2020

Jody Richards Hall – Regents Room and via Zoom

DATA ANALYTICS GRADUATE CERTIFICATE

REQUEST:
Approval of a Graduate Certificate in Data Analytics through the Department of Information Systems within the Gordon Ford College of Business.

FACTS:
This 12-hour graduate certificate will prepare students for utilizing data to drive decision making. Students will be exposed to the latest innovations in data analytics, data management, data mining models, and data visualization.

The following 12 hours of courses are required:

BDAN 513

BDAN 515

BDAN 517

BDAN 519

BUDGETARY IMPLICATIONS:
Implementation date will be Fall 2021, with no additional resources required.

RECOMMENDATION & IMPLEMENTATION DATE:
President Timothy C. Caboni recommends approval of a Graduate Certificate in Data Analytics to be implemented Fall 2021.

MOTION:
Approval to establish a Graduate Certificate in Data Analytics with implementation Fall 2021.

Gordon Ford College of Business
Department of Information Systems
Proposal to Create a New Certificate Program
(Action Item)

Contact Person: Ray Blankenship; ray.blankenship@wku.edu; 270-745-5952

1.   Identification of program:

1.1   Program title: Data Analytics
1.2   Required hours in program: 12 hours
1.3   Special information: N./A
1.4   Catalog description: This 12-hour graduate certificate will prepare students for utilizing data to drive decision making. Students will be exposed to the latest innovations in data analytics, data management, data mining models, and data visualization.
         The following 12 hours of courses are required:

BDAN 513	Contemporary Business Analytics	3 hours
BDAN 515	Data Management	3 hours
BDAN 517	Predictive Analytics	3 hours
BDAN 519	Visualization and Decision Making	3 hours

1.5   **Classification of Instructional Program Code (CIP):** 30.7101

2.   Learning outcomes of the proposed certificate program:

Students will be able to model and computationally analyze business-oriented data.

Students will be able to critically identify appropriate data structures to solve business problems.

Students will understand how to present and communicate graphical information related to various data analytic models.

3.   Rationale: Workforce demand shows a need for this type of program. The workforce 5-year projections for specific analyst positions with the state project numbers in parentheses follow: Credit Analyst (119); Financial Analyst (229); Management Analyst (471); Market Research Analyst (524). This credential would make students eligible to apply for this jobs.

3.1   **Relationship of the proposed certificate program to other programs now offered by the department:** N/A

3.2   **Relationship of the proposed certificate program to certificate programs offered in other departments**: N/A

3.3   **Projected enrollment in the proposed certificate program:** The projected enrollment is 10 to 15 students.

3.4   **Similar certificate programs offered elsewhere in Kentucky and in other states (including programs at benchmark institutions):** University of Kentucky offers a graduate certificate in Applied Statistics. University of Louisville offers a graduate certificate in Data Science. Murray

State University offers a Geospatial Data Science certificate, and the University of Cincinnati offers a certificate in Data Analytics.

3.5   **Relationship of the proposed certificate program to the university mission and objectives:** This program will bolster the stature and fiscal support of WKU's Graduate School and strengthen its external reputation. It will also ensure that WKU students graduate with skills to think critically, solve problems, and engage effectively with others. Finally, it will be a quality graduate program to further lifelong learning and retraining.

This program will help to address the state's postsecondary education strategic agenda by meeting the following standards: (3.2) Expand the availability of flexible, affordable, and competency-based postsecondary programs, as well as strategies like employer partnerships and Project Graduate, to support working-age adults in the pursuit of job-enhancing postsecondary credentials; (3.3) Supporting efforts to improve postsecondary access, workforce readiness, and the technology infrastructure of rural Kentucky; (9.5) Identify current and emerging workforce demands, entrepreneurial business opportunities, and stackable credentials that can lead to additional education/training; and (9.6) Advance Kentucky's STEM and health agendas through ongoing leadership, advocacy, and collaboration.

The proposed certificate will be offered online. This further supports the efforts to improve postsecondary access and workforce readiness.

4.   **Curriculum:**

BDAN 513	Contemporary Business Analytics	3 hours
BDAN 515	Data Management	3 hours
BDAN 517	Predictive Analytics	3 hours
BDAN 519	Visualization and Decision Making	3 hours
Total Hours		**12 hours**

5.   **Budget implications:** No additional resources required.

6.   **Proposed term for implementation:** Fall 2021

7.   **Dates of prior committee approvals:**

Committee	Date
Department of Information Systems	02/03/2020
GFCB Graduate Curriculum Committee	02/10/2020
Graduate Council	03/05/2020
Faculty Senate	04/16/2020
Provost	06/08/2020
Board of Regents	

Supplemental Information

<div align="center">

Data Analytics Information
NOTE: EMSI data used. The department is utilizing a new 2020 CIP code. Gray Data not available.

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1. **If the student demand total is <u>less than 10</u>, describe how you plan to market the program to increase student demand/interest at WKU. N/A**

2. **If the student demand is <u>greater than 10</u>, describe how you plan to advertise the program's availability to the current student body and/or to prospective students.** The courses used in this certificate are part of a concentration in the MBA program. Advertisement for this program will take place through the MBA program and the venues used to advertise it. DELO has also been contacted and will promote the Cybersecurity Data Analytics certificate as soon as the certificate is approved.

3.

    If the employment total is <u>less than 5,</u> provide a rationale on how this program can lead to employability of students. Address any partnerships developed to assist finding employment for students with this credential. NA

4. **List any institutions offering a similar program. Refer to https://dataportal.cpe.ky.gov/KYAcademicProgInventory.aspx to attain program listings using the same CIP code at other institutions.**

    WKU offers an undergraduate Applied Data Analytics certificate through the Gordon Ford College of Business. A graduate Data Analytics certificate would enhance the MBA degree and provide an opportunity to students for a post-baccalaureate certificate. Currently, students having received a bachelor's degree are returning to WKU to pursue the undergraduate Applied Data Analytics certificate or the Business Data Analytics undergraduate degree.

    Institution 1: Northern Kentucky University CIP 52.1201
    Program Name: Business Analytics
    Similarities/Differences with Proposed Program:

    NKU's certificate is offered to students not wishing to complete the entire Master of Business Informatics. "The courses in the certificate help prepare students to analyze data, merge their findings, and present solutions to problems." This purpose is similar to the proposed graduate certificate at WKU. The differences are that the NKU certificate requires 18 graduate hours and the WKU certificate requires 12 hours. THE NKU certificate also requires three hours of a graduate Accounting class as a foundation course while the WKU does not have such a requirement. The graduate certificate in Data Analytics could be used as a stackable credential in programs such as the MBA or the Master in Homeland Security Science program at WKU.

    Institution 2: Bellarmin University CIP 11.9999
    Program Name: Applied Business Analytics
    Similarities/Differences with Proposed Program:

The emphasis in this program is oriented toward Database Management Systems and Project Design. The classes meet on campus in a hybrid environment. The focus of the proposed certificate is on prediction and visualization. The entire certificate is offered in an online format. Making it possible to be completed from anywhere.

Institution 3: University of Louisville CIP 52.1399
Program Name: Business Analytics
Similarities/Differences with Proposed Program:

This is an entire data analytics program. There is not a certificate for this program.

There were only two other institutions in the state that offered a post-baccalaureate certificate in data analytics.

5. **Provide a budgetary rationale for creating this certificate program.** *If the certificate will use current faculty and existing courses, be sure to address any positive budgetary impacts.*

Courses can be staffed with existing faculty. This is an online program and can be taught with existing hardware and software. No new faculty resources are needed at this time.

6. **Expanding on the rationale submitted through the WKU curricular process, use any data source (Gray Data, etc.) to provide additional rationale for your program. Address on how it pertains to the recruitment and retention of students, the job market, the value of the credential, and student interest. EMSI data is available through the Division of Extended Learning and Outreach. Contact Anna Kerr (Anna.olson@wku.edu) to get EMSI data for your rationale.**

EMSI Data:
The information from Gray Associates is limited since the data for Data Analytics has not been captured in their database. EMSI data provides better data to support this Data Analytics certificate. From January 2017-March 2020 there have been 1.7 million unique job postings with a position intensity of 5:1. "This is higher than the posting intensity for all other occupations and companies in the region (4:1), indicating that they may be trying harder to hire for this position."

The median salary is $96.2K and there were 133,037 job posting in April 2020.
The Educational Breakdown for this type of program is as follows:

Education Level	Unique Postings	% of Total
Associate's degree	49,624	3%
Bachelor's degree	1,172,432	68%
Master's degree	338,643	20%

Bureau of Labor Statistics Data:

The occupation title of Data Analyst does not exist. A closely related name would be Data Scientist. The industry profile for this occupation is:

Industries with the highest levels of employment in this occupation:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Computer Systems Design and Related Services	4,430	0.20	$51.17	$106,440
Management of Companies and Enterprises	3,720	0.15	$49.05	$102,030
Management, Scientific, and Technical Consulting Services	3,610	0.24	$47.89	$99,600
Scientific Research and Development Services	1,120	0.16	$51.31	$106,720
Colleges, Universities, and Professional Schools	740	0.02	$31.08	$64,650

Industries with the highest concentration of employment in this occupation:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Management, Scientific, and Technical Consulting Services	3,610	0.24	$47.89	$99,600
Other Information Services	700	0.22	$53.39	$111,050
Pharmaceutical and Medicine Manufacturing	640	0.21	$49.83	$103,640
Computer Systems Design and Related Services	4,430	0.20	$51.17	$106,440
Cable and Other Subscription Programming	90	0.18	$48.92	$101,760

National estimates for this occupation: Top

Employment estimate and mean wage estimates for this occupation:

Employment (1)	Employment RSE (3)	Mean hourly wage	Mean annual wage (2)	Wage RSE (3)
30,810	3.1 %	$48.35	$100,560	1.0 %

RSE – Relative Standard Error

Percentile wage estimates for this occupation:

Percentile	10%	25%	50% (Median)	75%	90%
Hourly Wage	$25.34	$33.70	$45.33	$60.16	$75.99
Annual Wage (2)	$52,720	$70,090	$94,280	$125,140	$158,060

Data Analysts are employed in multiple areas of business with different titles such as Financial Analyst, Management Analyst, Budget Analysts, Operations Analyst, Supply Chain Analyst, Market Analyst, and Information Security Analyst.

CYBERSECURITY DATA ANALYTICS GRADUATE CERTIFICATE

REQUEST:
Approval of a Graduate Certificate in Cybersecurity Data Analytics through the Department of Information Systems within the Gordon Ford College of Business.

FACTS:
This 12-hour graduate certificate is the study of cybersecurity defenses by using data analytics to support the principles of data confidentiality, integrity, and availability. In this program, students will learn to defend proactively and continuously improve the security of the enterprise with an emphasis on using data analytics. Students will also learn about cybersecurity policies and compliance issues from an information assurance and risk management perspective.

The following 12 hours of courses are required:

BDAN 513	Contemporary Business Analytics	3 hours
CYSA 520	Principles of Cybersecurity for Data Analytics	3 hours
CYSA 522	Cybersecurity Risk and Compliance	3 hours
CYSA 524	Cybersecurity Orchestration Using Data Analytics	3 hours

BUDGETARY IMPLICATIONS:
Implementation date will be Fall 2021, with no additional resources required.

RECOMMENDATION & IMPLEMENTATION DATE:
President Timothy C. Caboni recommends approval of a Graduate Certificate in Cybersecurity Data Analytics to be implemented Fall 2021.

MOTION:
Approval to establish a Graduate Certificate in Cybersecurity Data Analytics with implementation Fall 2021.

Gordon Ford College of Business
Department of Information Systems
Proposal to Create a New Certificate Program
(Action Item)

Contact Person: Ray Blankenship; ray.blankenship@wku.edu; 270-745-5952

1.   Identification of program:

1.1   Program title: Cybersecurity Data Analytics
1.2   Required hours in program: 12 hours
1.3   Special information: N./A
1.4   Catalog description: This 12-hour graduate certificate is the study of cybersecurity defenses by using data analytics to support the principles of data confidentiality, integrity, and availability. In this program, students will learn to defend proactively and continuously improve the security of the enterprise with an emphasis on using data analytics. Students will also learn about cybersecurity policies and compliance issues from an information assurance and risk management perspective.

The following 12 hours of courses are required:

BDAN 513	Contemporary Business Analytics	3 hours
CYSA 520	Principles of Cybersecurity for Data Analytics	3 hours
CYSA 522	Cybersecurity Risk and Compliance	3 hours
CYSA 524	Cybersecurity Orchestration Using Data Analytics	3 hours

1.5   **Classification of Instructional Program Code (CIP):** 43.0404
2.   Learning outcomes of the proposed certificate program:

Students will understand the fundamentals of cybersecurity from a data analytics perspective.

Students will understand the applicable policies, laws, and regulations in cybersecurity.

Students will be able to perform vulnerability management activities and analyze output from common vulnerability tools

3.   Rationale: The Cybersecurity Data Analytics certificate is a relatively new program nationwide (2019) that combines the areas of cybersecurity and data analytics. This is what one CompTIA program manager had to say about the certificate.

"I'm really happy to hear about the cybersecurity analytics. The more I talk to heavily regulated industries, the more I find companies want to hire security analysts who don't necessarily have years and years of IT infrastructure background. Talked to CISO of NY Life and he said they hired a security analyst with 6 month experience from a degree program that focused more on business. Said she was a great employee. So you are headed in the right direction. The CompTIA Cybersecurity Analyst+ security certification--which mirrors what we are doing--is now their fastest-growing security certification, and is performing far better than expected, beating our 2019 revenue budgets which were aggressive."

The closest listing of a cybersecurity data analyst from the Bureau of Labor Statistics is an Information Security Analyst.

The median pay is $98, 350 per year. The number of jobs 2018, 112,300. The job outlook for 2018-2028 is projected to have a 32% growth. (Much faster than average) The expected employment change would be an additional 35,500 positions.

3.1 **Relationship of the proposed certificate program to other programs now offered by the department:** The courses in this program can be used as a concentration in the MBA program.

3.2 **Relationship of the proposed certificate program to certificate programs offered in other departments**: N/A

3.3 **Projected enrollment in the proposed certificate program:** The initial projected enrollment is 10 to 15 students. Enrollment is expected to reach 20 -25 students in three years.

3.4 **Similar certificate programs offered elsewhere in Kentucky and in other states (including programs at benchmark institutions):** Eastern Kentucky University offers a program in Digital Forensics and Cybersecurity. University of Louisville offers a program in Cybersecurity Management.

3.5 **Relationship of the proposed certificate program to the university mission and objectives:** This program will bolster the stature and fiscal support of WKU's Graduate School and strengthen its external reputation. It will also ensure that WKU students graduate with skills to think critically, solve problems, and engage effectively with others. Finally, it will be a quality graduate program to further lifelong learning and retraining.

This program will help to address the state's postsecondary education strategic agenda by meeting the following standards: (3.2) Expand the availability of flexible, affordable, and competency-based postsecondary programs, as well as strategies like employer partnerships and Project Graduate, to support working-age adults in the pursuit of job-enhancing postsecondary credentials; (3.3) Supporting efforts to improve postsecondary access, workforce readiness, and the technology infrastructure of rural Kentucky; (9.5) Identify current and emerging workforce demands, entrepreneurial business opportunities, and stackable credentials that can lead to additional education/training; and (9.6) Advance Kentucky's STEM and health agendas through ongoing leadership, advocacy, and collaboration.

The proposed certificate will be offered online. This further supports the efforts to improve postsecondary access and workforce readiness.

4. **Curriculum:**

The following 12 hours are required:

BDAN 513	Contemporary Business Analytics	3 hours
CYSA 520	Principles of Cybersecurity for Data Analytics	3 hours
CYSA 522	Cybersecurity Risk and Compliance	3 hours
CYSA 524	Cybersecurity Orchestration Using Data Analytics	3 hours

5.   **Budget implications:** No additional resources required.

6.   **Proposed term for implementation:** Fall 2021

7.   **Dates of prior committee approvals:**

Committee	Date
Department of Information Systems	02/03/2020
GFCB Graduate Curriculum Committee	02/10/2020
Graduate Council	03/05/2020
Faculty Senate	04/16/2020
Provost	06/08/2020
Board of Regents	

Supplemental Information

Cybersecurity Data Analytics Information
NOTE: EMSI data used. The department is utilizing a new 2020 CIP code. Gray Data not available.

1. **If the student demand total is <u>less than 10</u>, describe how you plan to market the program to increase student demand/interest at WKU.   N/A**

2. **If the student demand is <u>greater than 10</u>, describe how you plan to advertise the program's availability to the current student body and/or to prospective students.** The courses used in this certificate are part of a concentration in the MBA program. Advertisement for this program will take place through the MBA program and the venues used to advertise it. DELO has also been contacted and will advertise the Cybersecurity Data Analytics certificate as soon as the certificate is approved.

3. **If the employment total is <u>less than 5,</u> provide a rationale on how this program can lead to employability of students. Address any partnerships developed to assist finding employment for students with this credential. N/A**

4. **List any institutions offering a similar program. Refer to https://dataportal.cpe.ky.gov/KYAcademicProgInventory.aspx to attain program listings using the same CIP code at other institutions.**

   Institution 1: Eastern Kentucky University CIP 43.0116
   Program Name: Digital Forensics and Cybersecurity
   Similarities/Differences with Proposed Program: This program covers cybersecurity from a counterterrorism perspective but does not combine it with data analytics. The graduate certificate in Cybersecurity Data Analytics at WKU could be used as a stackable credential in programs such as the MBA or the Master in Homeland Security Science program at WKU.

   Institution 2: Murray State
   Program Name: Cybersecurity Management CIP 11.1003
   Similarities/Differences with Proposed Program: The emphases of this program is to teach cybersecurity from an Information Technology perspective. It does not integrate data analytics as a significant component for detecting and preventing digital attacks. The graduate certificate in Cybersecurity Data Analytics at WKU could be used as a stackable credential in programs such as the MBA or the Master in Homeland Security Science program at WKU.

   Institution 3:
   Program Name: University of Louisville CIP 11.1003
   Similarities/Differences with Proposed Program: This certificate is designed for computer science and engineering professionals. Our proposed certificate is designed for business professionals who need to understand cybersecurity and the use of data analytics to detect and prevent cybersecurity attacks. The graduate certificate in Cybersecurity Data Analytics at WKU

could be used as a stackable credential in programs such as the MBA or the Master in Homeland Security Science program at WKU.

5. **Provide a budgetary rationale for creating this certificate program.** *If the certificate will use current faculty and existing courses, be sure to address any positive budgetary impacts.* Courses can be staffed with existing faculty. This is an online program and can be taught with existing hardware and software. No new faculty resources are needed at this time.

6. **Expanding on the rationale submitted through the WKU curricular process, use any data source (Gray Data, etc.) to provide additional rationale for your program. Address on how it pertains to the recruitment and retention of students, the job market, the value of the credential, and student interest. EMSI data is available through the Division of Extended Learning and Outreach. Contact Anna Kerr (**Anna.olson@wku.edu**) to get EMSI data for your rationale.**

    EMSI DATA:

    The information from Gray Associates is limited since the data for Cybersecurity Data Analytics is a relatively new area of study (less than 2 years). EMSI data provides better data to support this Cybersecurtity Data Analytics certificate. From January 2017-March 2020, there have been 3.14 million job postings with a position intensity of 5:1. This is similar to the 4:1 ratio for the region indicating companies are putting an average effort toward hiring for this type of position.   As of April 2020, there were 248,293 job postings for the month and the average salary is $75.2K.

    The Educational Breakdown for this type of program is as follows:

Education Level	Unique Postings	% of Total
Associate's degree	145,324	5%
Bachelor's degree	2,081,681	66%
Master's degree	674,400	21%

Bureau of Labor Statistics Data:

The closest listing of a Cybersecurity Data Analyst from the Bureau of Labor Statistics is an Information Security Analyst. The median pay is $98, 350 per year. The number of jobs for 2018 was 112,300. The job outlook for 2018-2028 is projected to have a 32% growth. (Much faster than average) The expected employment change would be an additional 35,500 positions.

Capgemini Research Institute Data:

Please rate your organization's utilization of AI in cybersecurity for the following areas

Detection

12%
38%
51%

Prediction

15%
34%
51%

Response

18%
35%
47%

■ High utilization   Medium utilization   Low utilization
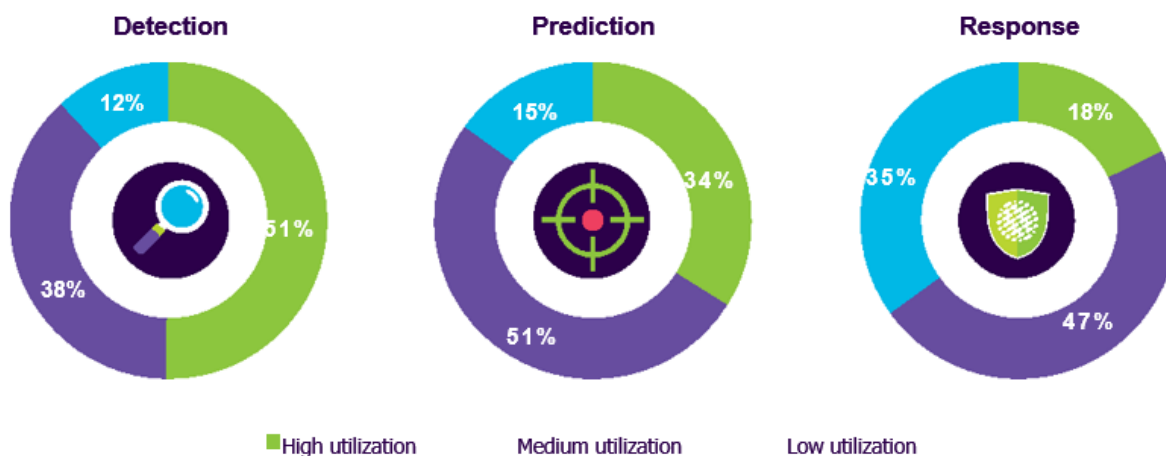
Source: Capgemini Research Institute, AI in Cybersecurity executive survey, N = 850 executives

The graph above is an indication of how data analytics is being used with cybersecurity. There is a growing need for employees to use data for detection and prediction. Those employees also need to understand what the appropriate response is for the specific threat. The proposed certificate will provide those skills for those students needing to advance their careers in the cybersecurity field.

FLOODPLAIN MANAGEMENT
UNDERGRADUATE CERTIFICATE

REQUEST:

Approval of an Undergraduate Certificate in Floodplain Management offered through Ogden College of Science and Engineering.

FACTS:

The Floodplain Management certificate requires completion of 14 semester hours. Students develop familiarity with federal floodplain management regulations, the National Flood Insurance Program, hydrology, surveying, and Geographic Information Systems that are critical to administering an aggressive floodplain management program. Completion of the certificate requires familiarity with all aspects of floodplain management and with the impacts of floods on individuals, on property, and on regional or national economics. This certificate has been coordinated with the Geography and Geology Department and with the Kentucky Association of Mitigation Managers. Students successfully completing the program are encouraged to take the Certified Floodplain Manager (CFM) exam. The CFM is a nationally recognized certification and is considered a desirable qualification by many employers.

Required courses for the certificate are CE 160/CE 161, CE 300, GISC 316, and CE 461 or GEOG 310/GEOL 310.

BUDGETARY IMPLICATIONS& IMPLEMENTATION DATE:

Implementation date will be Fall 2020 with no additional resources required. This undergraduate certificate is a transformation of the floodplain management minor.

RECOMMENDATION:
President Timothy C. Caboni recommends approval of an Undergraduate Certificate in Floodplain Management.

MOTION:
Approval to establish an Undergraduate Certificate in Floodplain Management, effective Fall 2020.

Ogden College of Science and Engineering
Office of the Dean
Proposal to Create a New Certificate Program
(Action Item)

Contact Person: Dr. Warren Campbell
                       Warren.Campbell@wku.edu (270) 745-8988

1. Identification of program:
1.1. **Program title:** Floodplain Management
1.2. **Required hours in program:** 14
1.3. **Special information:** Transformation of Floodplain Management Minor
1.4. **Catalog description:** The Floodplain Management certificate requires completion of 14 semester hours. Students develop familiarity with federal floodplain management regulations, the National Flood Insurance Program, hydrology, surveying, and Geographic Information Systems that are critical to administering an aggressive floodplain management program. Completion of the certificate requires familiarity with all aspects of floodplain management and with the impacts of floods on individuals, on property, and on regional or national economics. This certificate has been coordinated with the Geography and Geology Department and with the Kentucky Association of Mitigation Managers. Students successfully completing the program are encouraged to take the Certified Floodplain Manager (CFM) exam. The CFM is a nationally recognized certification and is considered a desirable qualification by many employers. Required courses for the certificate are CE 160/CE 161, CE 300, GISC 316, and CE 461 or GEOG 310/GEOL 310.

1.5. **Classification of Instructional Program Code (CIP):** 03.0205 – Water, Wetlands, and Marine Resources Management

2. Learning outcomes of the proposed certificate program:
- Students will demonstrate a familiarity with the National Flood Insurance Program (NFIP) and associated Federal regulations.
- Students will be able to perform the land surveys required to develop NFIP elevation certificates used in floodplain management.
- Students will be able to use Flood Insurance Rate Maps (FIRMs) and Flood Insurance
- Studies to determine flood elevations anywhere in the U.S.
- Students will be able to use, create, and apply GIS data used for floodplain management.
- Students will be able to develop basic watershed models used to determine flood discharges.
- Students should be able to pass the Certified Floodplain Manager exam.

3. Rationale:
3.1 **Reason for developing the proposed certificate program:** Reason for developing the proposed certificate program: Floods are the natural disaster with the greatest loss of life and property. As the climate changes, more and more catastrophic floods can be expected. In 2005 Hurricane Katrina caused more than $100B in damages and 1833 deaths. The cost just in property losses was about $300 for every man, woman, and child in the U.S. Mistakes were made at the Federal, state, and local level in recovery efforts. It was estimated that 20 % of the 1833 casualties died because government agencies could not get food, water, and medical supplies to an American city for 4 days. The more people who are aware of

basic principles of floodplain management, the less likely these catastrophic mistakes. By Federal law, each NFIP participating community must designate a floodplain administrator. There are more than 22,000 NFIP participating communities but only about 11,000 Certified Floodplain Managers. This certificate would help develop professionals required for a critical national need.

3.2. Relationship of the proposed certificate program to other programs now offered by the department: It is related to WKU's Floodplain Management Minor, which the department was requested to delete through the transformation process.

3.3. Relationship of the proposed certificate program to certificate programs offered in other departments: N/A

3.4. Projected enrollment in the proposed certificate program: 5 to 10

3.5. Similar certificate programs offered elsewhere in Kentucky and in other states (including programs at benchmark institutions): No other university offers a certificate program although the University of Florida is exploring the possibility and the University of Washington has a Planning Master's degree with floodplain management concentration.

3.6 Relationship of the proposed certificate program to the university mission and objectives:
By helping prepare our students for careers in floodplain management it allows them "to be productive, engaged, and socially responsible citizen-leaders in a global society." Floodplain management, more than most fields, is multidisciplinary requiring a combination of technical expertise combined with a socially responsive capability to communicate risk to those most vulnerable and least aware of their flood risk.

4. Curriculum:
CE 160 Principles of Surveying (3)
CE 161 Principles of Surveying Lab (1)
CE 300 Floodplain Management (3)
CE 461 Hydrology (3) or GEOG/GEOL 310 Global Hydrology (3)
GISC 316 Fundamentals of Geographic Information Systems (4)

5. Budget implications:
None. All courses are currently taught with or without this certificate program.

6. Proposed term for implementation: Fall 2020

7. Prior committee approvals:

Committee	Approval Dates
School of Engineering & Applied Sciences	10/15/2019
Ogden College Curriculum Committee	11/21/2019
Undergraduate Curriculum Committee	12/10/2019
University Senate	02/20/2020
Provost	03/03/2020
Board of Regents	

Supplemental Information

Kentucky Data

GRAYASSOCIATES

| Scoring Rubric | Program Rank | Scorecard | Prog x Market | Competitors | Data Table | Workplace Requirements | Historical Data | Crosswalks | Data Definitions |

| CIP: 03.0205 Water, Wetlands, and Marine Resources Mgmt ▼ | Market: Kentucky ▼ | Modality: All ▼ | Award Level: Certificate ▼ | Current Programs |

Overall Score (75 Percentile)   **6**

Student Demand (50 Percentile)   2

Category	Percentile	Criterion	Value	Score
Size	0	Inquiry Volume (12 Months)	0	0
	0	Int'l Page Views (12 Months)	0	NS
	0	Google* Search Volume (3 Months)	NA	NS
	0	Completion Volume	0	0
Growth	96	Inquiry Volume YoY Change (Units)	0	1
	0	Google* Search YoY Change (Units)	NA	NS
	93	Completion Volume YoY Change (Units)	0	1
	0	Inquiry Volume YoY Change (%)	NA	NS
	0	Google* Search YoY Change (%)	NA	NS
	0	Completion Volume YoY Change (%)	NA	NS

Degree Fit (49 Percentile)   0

Category	Percentile	Criterion	Value	Score
Completions		National Completions by Level	See	0
Workforce		National Workforce Ed Attainment	Below	0
NHEBI Natl 2 Year	0	Cost Index**	NA	NS
	0	Student: Faculty Index	NA	NS

Inquiries and Completions

Award Level	Inquiries (Market)	Completions (Market)	Completions (National)
Certificate	NA	NA	13%
Associates	NA	NA	4%
Bachelors	NA	NA	23%
Postbaccalaureate Certificate	NA	NA	8%
Masters	NA	NA	51%
Post-masters Certificate	NA	NA	0%
Doctoral	NA	NA	0%
Unknown	NA	NA	0%

Competitive Intensity (50 Percentile)   6

Category	Percentile	Criterion	Value	Score
Volume of Competition	0	Campuses with Graduates**	0	6
	97	Institutions YoY Change (Units)	0	0
	0	Average Completions/Institution	NA	NS
	0	Median Completions/Institution	NA	NS
	0	Program Size YoY Change (Units)	NA	NS
	0	Program Size YoY Change (%)	NA	NS
	0	Insts. with Program Online**	0	NS
	0	% of Institutions	NA	NS
	0	Online Completions**	0	NS
	0	% of Completions	NA	NS
Market Saturation	0	Completions per 1,000 Pop**	NA	NS
	0	Average Cost per Inquiry**	NA	NS
	0	Google Search * Cost per Click**	NA	NS
	0	Competition Index**	NA	NS

CIP Description

A program that prepares individuals to apply the principles of marine/aquatic biology, oceanography, natural resource economics, and natural resources management to the development, conservation, and management of freshwater and saltwater environments. Includes instruction in subjects such as wetlands, riverine, lacustrian, coastal, and oceanic water resources; water conservation and use; flood control; pollution control; water supply logistics; wastewater management; aquatic and marine ecology; aquatic and marine life conservation; and the economic and recreational uses of water resources.

Job Postings (Market)

Award Level	Minimum Education Requested
- Unspecified -	NA
High School/Certificate	NA
Associates	NA
Bachelors	NA
Masters	NA
Doctoral	NA

BLS Workforce Edu (Natl)

Award Level	BLS Educational Attainment
No College	NA
Some College	NA
Associates	NA
Bachelors	NA
Masters	NA
Doctoral	NA

Employment* (66 Percentile)   -2

Category	Percentile	Criterion	Value	Score
Size	0	Job Postings Total (12 Months)	NA	NS
	0	BLS Current Employment	NA	NS
	0	BLS Annual Job Openings	NA	NS
	0	Share of Generalist Employment	NA	NS
	0	Share of Generalist Openings	NA	NS
Growth	0	Job Postings YoY Change (Units)	NA	NS
	0	Job Postings YoY Change (%)	NA	NS
	0	BLS YoY Change (%)	NA	NS
	0	BLS 3-Year Historic Growth (CAGR)	NA	NS
	0	BLS 10-Year Future Growth (CAGR)	NA	NS
Saturation	0	Job Postings per Graduate	NA	NS
	0	BLS Job Openings per Graduate	NA	NS
Pay and Outcomes	0	10th-Percentile Wages	NA	NS
	16	Wages (Age < 30)	$34,636	-2
	51	Wages (Age 30-60)	$80,546	2
	48	% with Any Graduate Degree	33%	NS
	47	% with Masters	24%	NS
	55	% with Doct/Prof Degree	9%	NS
	93	% Unemployed (Age <30)**	7%	-2
	49	% Unemployed (Age 30-60)**	3%	0
	29	% in Direct Prep Jobs	14%	NS
	0	GE Wages - Assoc. & Cert	NA	NS
	0	GE Placement Rate - Assoc. & Cert	NA	NS

* - Google search, employment data and Jobs Per Grad Ratio do not filter by award level.
** - Color scale in reverse.

NA - No data available/not currently tracked.   NS - Not Scored in Rubrics (values = 0).
2-Yr - Associates & certificate programs only.

| <40% | 40%+ | 70%+ | 90%+ | 95%+ | 98%+ | Percentile |

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National Data

| Scoring Rubric | Program Rank | Scorecard | Prog x Market | Competitors | Data Table | Workplace Requirements | Historical Data | Crosswalks | Data Definitions |

CIP: 03.0205 Water, Wetlands, and Marine Resources Mgmt ▼ | Market: National ▼ | Modality: All ▼ | Award Level: Certificate ▼ | Current Programs

Overall Score (79 Percentile)   **3**

Student Demand (86 Percentile)   **2**

Category	Percentile	Criterion	Value	Score
Size	0	Inquiry Volume (12 Months)	0	0
	0	Int'l Page Views (12 Months)	0	NS
	0	Google* Search Volume (3 Months)	NA	NS
	61	Completion Volume	43	0
Growth	92	Inquiry Volume YoY Change (Units)	0	0
	0	Google* Search YoY Change (Units)	NA	NS
	82	Completion Volume YoY Change (Units)	21	1
	0	Inquiry Volume YoY Change (%)	NA	NS
	0	Google* Search YoY Change (%)	NA	NS
	87	Completion Volume YoY Change (%)	96%	1

Degree Fit (49 Percentile)   **0**

Category	Percentile	Criterion	Value	Score
Completions		National Completions by Level	See	0
Workforce		National Workforce Ed Attainment	Below	0
NHEBI Natl 2 Year	0	Cost Index**	NA	NS
	0	Student: Faculty Index	NA	NS

Inquiries and Completions

Award Level	Inquiries (Market)	Completions (Market)	Completions (National)
Certificate	NA	14%	13%
Associates	NA	4%	4%
Bachelors	NA	25%	23%
Postbaccalaureate Certificate	NA	8%	8%
Masters	NA	50%	51%
Post-masters Certificate	NA	0%	0%
Doctoral	NA	0%	0%
Unknown	NA	0%	0%

Competitive Intensity (62 Percentile)   **3**

Category	Percentile	Criterion	Value	Score
Volume of Competition	60	Campuses with Graduates**	4	0
	88	Institutions YoY Change (Units)	2	0
	56	Average Completions/Institution	11	0
	79	Median Completions/Institution	11	0
	98	Program Size YoY Change (Units)	10	2
	99	Program Size YoY Change (%)	20	1
	0	Insts. with Program Online**	0	NS
	0	% of Institutions	NA	NS
	0	Online Completions**	0	NS
	0	% of Completions	NA	NS
Market Saturation	48	Completions per 1,000 Pop**	0.00	NS
	0	Average Cost per Inquiry**	NA	NS
	0	Google Search * Cost per Click**	NA	NS
	0	Competition Index**	NA	NS

CIP Description

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Job Postings (Market)

Award Level	Minimum Education Requested
- Unspecified -	NA
High School/Certificate	NA
Associates	NA
Bachelors	NA
Masters	NA
Doctoral	NA

BLS Workforce Edu (Natl)

Award Level	BLS Educational Attainment
No College	NA
Some College	NA
Associates	NA
Bachelors	NA
Masters	NA
Doctoral	NA

Employment* (67 Percentile)   **-2**

Category	Percentile	Criterion	Value	Score
Size	0	Job Postings Total (12 Months)	NA	NS
	0	BLS Current Employment	NA	NS
	0	BLS Annual Job Openings	NA	NS
	0	Share of Generalist Employment	NA	NS
	0	Share of Generalist Openings	NA	NS
Growth	0	Job Postings YoY Change (Units)	NA	NS
	0	Job Postings YoY Change (%)	NA	NS
	0	BLS YoY Change (%)	NA	NS
	0	BLS 3-Year Historic Growth (CAGR)	NA	NS
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	0	GE Wages - Assoc. & Cert	NA	NS
	0	GE Placement Rate - Assoc. & Cert	NA	NS

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<40% | 40%+ | 70%+ | 90%+ | 95%+ | 98%+ | Percentile

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Prior to CAPE, a minor in floodplain management was offered. During the CAPE process, it was determined that the minor should be transformed to a certificate. This proposal is to create the floodplain management certificate. The minor has been suspended through the curricular process.

1. **If the student demand total is <u>less than 10</u>, describe how you plan to market the program to increase student demand/interest at WKU.**
   This program will be advertised to current students at WKU primarily in civil engineering and geology. The program will also be advertised to the 17,000 members of the Association of State Floodplain Managers (ASFPM) and FEMA Emergency Management Institute. Through completion of this certificate, students are prepared to sit for the Certified Floodplain Managers (CFM) exam (https://www.floods.org/certification-program-cfm/getting-certified/).

2. **If the student demand is <u>greater than 10</u>, describe how you plan to advertise the program's availability to the current student body and/or to prospective students.**

3. **If the employment total is <u>less than 5,</u> provide a rationale on how this program can lead to employability of students. Address any partnerships developed to assist finding employment for students with this credential.**

   Floodplain management is the operation of a community program of preventive and corrective measures to reduce the risk of current and future flooding, resulting in a more resilient community (https://www.fema.gov/floodplain-management/).   For some students, this certificate could add more employment opportunities to students who are desiring to work in the area of public safety and planning.   In Kentucky, students with this certificate could be employed at any city municipality, Federal agencies like FEMA, or water resources companies like AECOM, Michael Baker International, Wood, Atkins, Stantec, CDM, IBM, H2O Partners, Dewberry, Halff, HDR, Freese and Nichols, Jacobs, ISO, Tetra Tech, LB Foster, and others.

4. **List any institutions offering a similar program. Refer to https://dataportal.cpe.ky.gov/KYAcademicProgInventory.aspx to attain program listings using the same CIP code at other institutions.**

   There are currently no other Kentucky institutions that offer a program in this CIP code. However, the University of Florida, the University of Washington offer similar programs. Also, Hurricane Harvey did more than $100B in damage in the U.S. Because of this, Texas received more than $1B in recovery money from FEMA. The Governor of Texas appointed the Chancellor of the Texas A&M was appointed the recovery czar. Texas A&M professors are now involved in recovery efforts and in rebuilding more resilient infrastructure.

5. **Provide a budgetary rationale for creating this certificate program.** *If the certificate will use current faculty and existing courses, be sure to address any positive budgetary impacts.*

   This certificate will use current faculty and existing courses. It is desired that the introductory course in this certificate will become a Connections course in the Colonnade program. If that occurs, more students could become interested in this topic and thus enroll in the major. If this occurs then there would be a positive budgetary impact.

6. **Expanding on the rationale submitted through the WKU curricular process, use any data source (Gray Data, etc.) to provide additional rationale for your program. Address on how it pertains to the recruitment and retention of students, the job market, the value of the credential, and student interest. EMSI data is available through the Division of Extended Learning and Outreach. Contact Anna Kerr (Anna.olson@wku.edu) to get EMSI data for your rationale.**

   Many of the people who work as floodplain managers are also civil engineers or geologists who may have other job titles or who are working in other areas. Thus, some of the market information may be misleading regarding opportunities for graduates. Per Grey Associates data, there continues to be a growth in civil engineering positions. Also the Kentucky Engineering Sector Analysis provided recently by the CPE, civil engineering jobs are expected to continue to grow steadily over the next ten years in the state of Kentucky.

   FEMA is looking for professionals who are willing to travel to disaster sites. Since floods are the most frequent declared disaster there would be many opportunities for students with the certificate to work and gain more experience.

   More than 22,000 U.S. communities participate in the National Flood insurance Program (NFIP). By law, each of these communities must designate a floodplain administrator. This certificate would be a very desirable credential for people seeking these jobs. Currently, there are only about 11,000 Certified Floodplain Managers (CFMs) in the U.S. and only about 38 percent of these are local officials. The rest work for state and Federal agencies, and with companies working in water resources. Each person seeking the certificate will have the opportunity to become a CFM.

EMERITUS
APPOINTMENTS

REQUEST: Approval of faculty emeritus status for Drs. Dawn Bolton, Cheryl Davis and Wieb Van der Meer..

FACTS: Listed below are faculty members who have been recommended by tenured faculty, department chairs, and college deans to be awarded emeritus status. All have served the university for at least ten years and have had distinguished records of achievement and service.

College of Health & Human Services

Dr. Beverly Siegrist, Professor of Nursing and Allied Health, Emeritus

Gordon Ford College of Business

Dr. Dawn Bolton, Associate Professor of Management, Emeritus

Ogden College of Science and Engineering

Dr. Cheryl Davis, University Distinguished Professor of Biology, Emeritus

Dr. David Neal, Professor of Mathematics, Emeritus

Dr. Wieb Van der Meer, Professor of Physics and Astronomy, Emeritus

BUDGETARY IMPLICATIONS: No funds requested

RECOMMENDATION: President Timothy C. Caboni recommends awarding the above individuals emeritus status.

MOTION: **Approval of emeritus status awarded for the recommended individuals.**