**Microcredential Proposal Form**

# Proposer Name: Shayan Mirzabeigi and Eddie Bevilacqua

**Contact Email:**

**Contact Phone:**

Department: **Open Academy + SRM**

1. **Microcredential Information:**

1.1. Microcredential Title: **Spatial Data Analysis for Sustainability**

1.2. Type of Proposal: New Revision

1. **Detailed Microcredential Description**

2.1. Microcredential alignment with ESF goals

*Describe why this microcredential (or revision) is needed to meet current or proposed goals and outcomes of the program or College. For revisions, provide explanation and/or justification for change.*

This microcredential aligns with the goals and outcomes of the College of Environmental Science and Forestry (ESF) as outlined in the ESF Strategic Plan (2023):

1. **Pillar 1, Theme 1, Goal 8:** *Establish lifelong learning opportunities with online degrees, certificates, and microcredential programs.* **Spatial Data Analysis for Sustainability** microcredential offers a unique, short-duration educational experience that meets the professional needs of learners seeking to advance in the data analysis and GIS fields, particularly as they pertain to sustainability.
2. **Pillar 1, Theme 2, Goals 1 and 2:** *Expand relevance and accessibility of an ESF education to a wider range of learners & Develop new programs in high-demand areas* *to meet industry, governmental, non-governmental, and non-profit workforce needs*. This microcredential is designed to be accessible to a broad audience, including professionals seeking to enhance their skills in data analysis and GIS. As the attached document states, there is an anticipated growth of over 30% in the data science field.
3. **Pillar 2, Theme 2, Goal 3:** *Increase Revenue Streams.* The creation and offering of the **Spatial Data Analysis for Sustainability** microcredential contribute to ESF’s strategic objective of increasing revenue streams by diversifying educational offerings. Microcredentials attract non-traditional students, including working professionals and industry practitioners, who seek targeted and flexible learning opportunities. This course provides a valuable income source through enrollment fees while also enhancing the College's reputation as a leader in sustainability education. Additionally, it opens up opportunities for partnerships with businesses and organizations, potentially leading to further financial support and collaboration.

Microcredentials should be shorter in duration than Degrees or Certificate/Advance Certificates and are designed to be a unique educational experience that provides the learner with a set of skills, competencies, and/or certifications specific to professional needs. The Spatial Data Analysis Microcredential meets the above requirements by offering learners a flexible and quick way to advance in their career by understanding the principles of spreadsheet and spatial data analysis using both qualitative and quantitative methods.

2.2. Type of Microcredential: Credit Non-Credit

*Note: For credit-bearing microcredentials, complete section 2.17. For non-credit microcredentials, complete section 2.18. Complete either section 2.17 or section 2.18. If you intend to offer both credit bearing and non-credit versions of your microcredential, you must submit two separate Microcredential Proposal forms.*

# 2.3. Anticipated launch date/semester: Fall 2025

2.4. What is your anticipated enrollment? 20

# 2.5. Potential target audience(s):

* Current Students
* Prospective Students
* Adult Learners
* Alumni
* Faculty/Staff
* K-12 Partners

If either of the below, please specify:

* Business/Industry Partners
* Community Partners

2.6. Format of the microcredential program. Check all that apply.

* Online (synchronous)
  + Online (asynchronous)
  + Online (combined synchronous and asynchronous)
  + Hybrid (if learners take ESF 300)
  + In-person
  + Other

If other checked above, please explain:

2.7. Is enrollment in this microcredential restricted to currently enrolled ESF students?

Yes No

2.8. Is this enrollment in this microcredential restricted to students who already hold a bachelor’s degree?

Yes No

2.9. Are there any other enrollment restrictions? If so, please describe.

# 2.10 Is this related to other microcredentials ESF offers? Yes No

If yes, list related microcredentials here:

2.11. Is this part of a series of microcredentials? Yes No

If yes, list other microcredentials in the series here:

# 2.12. Microcredential Description *(this will be used in marketing and posted to the microcredential website).*

*At the end of the description, tell the learner what they will be able to do once they complete the microcredential. For example: successful completion of this microcredential prepares you to apply for positions such as... OR - this microcredential is designed for existing professionals seeking to add specialized skills to enable them to... Be sure to explain if this is a graduate microcredential. Be sure to list if this prepares you to take an industry certification exam.*

This microcredential introduces students to various metrics and analyses for assessing sustainability outcomes. It provides an overview of analytical methods and tools, including spreadsheets and statistics, with specific examples of their application to sustainability solutions. Additionally, the microcredential covers spatial analyses and GIS technology, exploring the uses and limitations of geospatial data, remote sensing, and GIS software and tools. Examples of how GIS can be applied to sustainability solutions are also included.

2.13. Connection to Labor Market *(These will be listed on the ESF and SUNY websites).*

*List in bulleted form specific skills and competencies that will be mastered.*

* Analytical Techniques
* Spreadsheet analysis
* Geographic Information Systems
* Spatial Analysis

2.14. Industry Partner(s) (Attach supporting documents to form)

*To ensure alignment to the workforce, supportive documentation demonstrating collaboration with business/industry, P-12, or community organizations needs to be included (letter of support, feedback from 5-year review report, etc.). Briefly describe your contact with an industry partner below, and attach supporting documentation to your submission.*

See attached PDFs

# 2.15. Microcredential Student Learning Outcomes (MSLOs)

*In order to complete the microcredential, the student will be able to do the following:*

1. Develop comprehensive data literacy for sustainability analysis.
2. Acquire, create, analyze and manage geospatial data for sustainability analysis.
3. Analyze and interpret sustainability data using advanced tools.
4. Apply quantitative and qualitative tools to study complex sustainability problems.

Upon completion of any ESF microcredential, learners will be able to:

* Demonstrate the ability to apply specialized skills and knowledge gained through micro-credentials in real-world settings, thereby enhancing their employability in a competitive job market.
* Effectively utilize digital badges to showcase their competencies on professional platforms, facilitating better recognition of their skills by potential employers.
* Understand how micro-credentials contribute to their academic records and career trajectories, including the ability to transfer earned credits towards further academic programs and leverage their learning for future employment opportunities.

2.16. Assessment of MSLOs

*How will the MSLOs be assessed?*

In addition to assessment of the component course learning outcomes described below, the microcredential learner will complete a cumulative assessment that addresses the above listed Microcredential Learning Outcomes.

* Learners complete weekly discussion boards
* Weekly multiple choice quizzes
* Weekly assignments combining application of spreadsheet and spatial analysis with purpose of sustainability data analysis

*What* ***sharable artifacts*** *will students produce that demonstrate mastery?*

* Learners produce map showing results of a spatial analysis.
* Learners submit a data visualization presentation.

# 2.17. Credit-bearing requirements, if applicable

For credit bearing Microcredentials

* # of Courses Required 2
* Total credit hours 6

|  |  |  |  |
| --- | --- | --- | --- |
| COURSE # | Course Title | Credits | Faculty /  Instructor/Sponsor |
| SUS 330 | Introduction to Sustainability Data Analysis | 3 | Shayan Mirzabeigi |
| SUS 350  Or  ESF 300 | Intro to Spatial Analysis and GIS  Intro to Geospatial Information Technologies | 3 | Eddie Bevilacqua  or  Richard Shaker |

*\*Attach draft of syllabi for any new courses*

Minimum course GPA (if different from 2.0) \_\_\_\_\_\_\_

Time to complete: 2 semesters

Learners who have completed the above courses no more than three years prior to the learner’s microcredential completion application may be awarded a microcredential (**badge only**), unless otherwise determined by the department. If you would like to determine a period of time other than three years, please specify here.

# 2.18. Non-credit requirements, if applicable

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | Description | Anticipated Amount of Time to Complete | Faculty /  Instructor/Sponsor |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

*\*Attach draft of syllabi for any new offerings*

Total time to complete: \_\_\_\_\_\_ weeks | months | (circle one)

Time intensity: \_\_\_\_\_\_\_ hours per day | week (circle one)

# 2.19 Course Materials

If the materials are the same as an existing approved course outline, a note can be made below.

\*Equivalent materials may be substituted.

|  |  |
| --- | --- |
| Cost | Title/Description |
| $40 | Fundamentals of GIS (textbook for ESF 300 students only) |
|  |  |

2.20. Is grant funding available for this microcredential? If so, summarize the funding below.

# No

# 2.21. Does this microcredential stack to another certificate or degree program? If so, which one(s)?

# If learners meet program requirements, credits from this microcredential can be put towards the Sustainability Management degree.

2.22. Does this microcredential give the learner the opportunity to test for or otherwise earn an industry certification? If so, summarize the certification below.

# No

2.23 What is the schedule of regular programmatic assessment and evaluation?  *(Best practice suggests completing program level assessment on a cycle no longer than 2-3 years, but some microcredentials might require shorter intervals).*

- Each semester, faculty and department chair will review course evaluations and make necessary revisions to courses

- Each year, the department chair and curriculum committee will review core competencies of each microcredential to ensure alignment with business and industry needs.

- Every 2 years, the department will coordinate with the Institutional Research and Assessment Coordinator to ensure that the program meets middle states and SUNY reporting guidelines

- Every 3-4 years, we will employ an external evaluator.

1. **New Institutional Impacts**

This section pertains to forecasting institutional resource needs to support the microcredential creation or revision. Consider things like staffing needs, classroom or technology resources, and/or transportation requirements and list any needed resources below. Note that, if this is a revision, only the impacts of the revision should be included.

3.1. Staffing needs:

Online courses are currently taught by ESF faculty through extra service. Existing faculty for in-person course.

3.2. Classroom resources (physical facilities in a laboratory, lecture hall, flexible space, academic computing):

N/A

3.3. Technology resources: (e.g., electron microscopes, UAVs, GPS receivers, survey equipment, etc.)

N/A

3.4. Computing resources (software licensing, hardware, access):

N/A

3.5. Library resources (subscriptions, services):

N/A

3.6. Transportation requirements (budget, fees, fleet, vehicles):

N/A

3.7. Forest properties or field practicum facilities (Note: Please contact Forest properties each semester to schedule):

N/A

1. **Health and Safety Considerations**

Will any of the conditions or situations outlined below be present in association with the microcredential?

|  |  |  |
| --- | --- | --- |
|  | Yes | No |
| 4.1. Will substances with any of the following properties be used during instruction: flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury? |  | X |
| 4.2. Will any physical hazards be present during instruction? (e.g. machines that need safety guards; razor blades or syringes; compressed gases, etc.) |  | X |
| 4.3. Will any biological hazards be present during instruction? (e.g. handling animals [rabies or hantavirus]; cultures or stocks of infectious agents [fungal spores, viruses, bacteria, etc.]) |  | X |
| 4.4. Will any radiation hazards be present during instruction? (e.g. radiosotopes, X-rays, ultraviolet rays, lasers, etc.) |  | X |
| 4.5. Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction? (Give considerable thought to electrical use outdoors, or any potentially wet location) |  | X |
| 4.6. Will there be any personal safety issues related to the class? (e.g. due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.) |  | X |
| 4.7. Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise? |  | X |
| 4.8. Will any type or personal protective equipment be necessary during class exercises? (e.g. hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.) |  | X |

**6. SIGNATURES**

\*Microcredentials that span disciplines, departments, or schools will require signatures from all stakeholders.

Shayan Mirzabeigi 09/26/2024

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Author of microcredential Date

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Author of microcredential Date

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Department Academic Affairs Committee Representative Date

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Department Chair Date

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Provost Date