HDRFS Data Analytics Research Internship: 2025 Call for Faculty Project Proposals

Submit by September 10, 2025 to Ilaria Vinci (ivinci@unr.edu)

(A) Synopsis.

This call for project proposals is open to any NSHE faculty member to request the support of an undergraduate student intern on a semester-long data analytics-focused research internship. Students can contribute their data analytics skills (Python, SQL, and/or database management) to support ongoing faculty research.

This internship program offers an opportunity for a group of NSHE undergraduate students who have completed a certification in Data Analytics through NCLab to apply their new skills to practical research tasks. This document outlines the goals of the program and the scope of student projects that we welcome from faculty.

The Data Analytics Research Internship program is part of the NSF EPSCoR-funded award entitled "Harnessing the Data Revolution for Fire Science" (HDRFS). The aim of the program is to foster career discovery through data-driven decision-making and statistical analysis, enhancing skills, knowledge, and confidence among participants.

This call invites faculty proposals for student projects in a semester-long program. Interns will work under the guidance of a mentoring faculty member to complete their project and contribute to the faculty member's research. Projects can contribute to broader HDRFS initiatives (i.e., aligned projects), or standalone initiatives that focus on computer science, data analytics, wildfire, or related fields. Students who are candidates for the internship program will have completed a certification in one of three Data Analytics topic areas (more details on each are below):

1. SQL and Python Fundamentals,
2. Python Intensive, or
3. Spreadsheets and Dashboards (Data Literacy Fundamentals)

Funding: $4,000 for intern scholarship funds and $750 in materials and supplies for faculty.

(B) Program structure.

- *Dates*: The internship will run during the spring semester of 2026.
- *Project scope*: Mentors will define the project goals, tasks, and deliverables. Students are not required to develop their own research ideas.
- *Student recruitment*: After mentors and projects are selected, student applications will open. Mentors and HDRFS staff will collaborate to select students through application review and interviews.
- *Team-based work*: Each mentor will supervise the intern to collaborate on completing the tasks. Students make a commitment to work an average of approximately 16 hrs/week during the spring semester. A "tiered" mentorship approach may be used, wherein a graduate student directly mentors the intern, both overseen by a faculty member.
- Mentors are encouraged to structure the semester-long program in three phases:
  - *Training*: The first 1-2 weeks of the project will focus on equipping students with necessary skills and background on the project.

- *Implementation*: The bulk of the project work will occur during this phase, with weekly check-ins and regular communication to ensure progress.
- *Finalization/delivery*: The last week will be dedicated to feedback and revisions, culminating in the presentation of the final deliverable.

(C) Project proposals: **How to submit a proposal to mentor an intern in spring 2026.**

Eligibility: Any NSHE faculty member or faculty/graduate student pair may submit a project proposal to mentor and supervise a student in spring 2026.

Written components. Please submit the following by September 10, 2025 to Ilaria Vinci (ivinci@unr.edu)

- Project description (1-2 pages):
  - Outline the scientific objective(s) of the project
  - Describe what exposure the student will have to data-driven decision-making and statistical analysis.
  - Explain how the project will build transferable data analytics skills.
- Activities (1-2 pages):
  - A detailed description of the tasks on which the intern will work
  - Describe the approach to the 1–2-week training period
  - Describe the final deliverable (e.g., a cleaned and organized dataset, results with figures or plots, and/or written report of findings)
  - Student selection preferences: Please note in the proposal if you have strong preferences with respect to working in-person versus remote, and which of the following content areas your project needs: Python, SQL, or database management (spreadsheets and dashboards).

Commitment. Mentors commit to the following:

- Develop a project scope with clear goals, deliverables, tasks, and a timeline,
- Participate in student selection,
- Support the student's training to enable them to contribute to the research,
- Mentor the student to implement the activities during the internship and guide the finalization of the project, and
- Hold regular meetings and provide constructive feedback to the intern.

Selection criteria. Projects will be selected based on:

- Quality and sufficiency of training described (to ensure that students from interdisciplinary backgrounds are set up for success),
- Feasibility and appropriateness for candidate interns,
- Alignment of activities to program goals, and
- Clarity and organization of project goals, scope of work, deliverables, tasks, and timeline.

Timeline:

- Faculty project selection: September 2025
- Student recruitment and student selection: October 2025
- Research Internships: Spring semester 2026

(D) Candidate interns' prior training and skills.

Students applying to the program will have completed 200-hour NCLab training in one of the three topic areas. This program is open to students of **any major** to gain a data analytics skillset that is complementary to their field of study.

1. SQL & Python Fundamentals
    a. SQL Fundamentals: Basic queries, extracts, functions, table management, joins.
    b. Python Programming: Loops, conditions, functions, recursion, data structures.
    c. Text Processing in Python: Analyzing and manipulating text strings.
    d. Plotting and Drawing with Python: Using Matplotlib for visualizations.
    e. Working with Files in Python: File operations and data processing.
    f. Data Visualization with Python: Creating graphs, charts, and maps
    g. Training Capstone Project: As part of the certification, students applied these skills in data-driven projects, creating meaningful analyses and visualizations. They built comprehensive datasets, implemented SQL queries, processed data using Python, and created visualizations to support their findings
    h. Complementary skills learned: Running codes on personal machines and collaborative coding and teamwork.
2. Python Intensive
    a. Computational Literacy: Algorithm design, logic, loops, recursion.
    b. Python Programming: Comprehensive overview and problem-solving.
    c. Text Processing in Python: Analyzing and manipulating text strings.
    d. Plotting and Drawing with Python: Using Matplotlib.
    e. File Operations: Opening, reading, processing, and writing files.
    f. Software Projects: Building Graphics Editor and Image Viewer.
    g. Data Visualization: Creating various types of plots and charts.
    h. Predictive Data Analytics: Data cleaning, working with DataFrames, regression analysis.
    i. Training Capstone Project: Students demonstrated their skills through extensive data analysis and software projects. They created sophisticated programs, visualized data, and conducted predictive analyses to draw meaningful conclusions.
    j. Complementary skills learned: Running codes on personal machines and collaborative coding and teamwork.
3. Spreadsheets and Dashboards (Data Literacy Fundamentals)
    a. Data Foundations: Manipulating and formatting data in spreadsheets.
    b. Data Visualization: Creating visualizations (charts, histograms, etc.).
    c. Data Analysis: Variables, regression, statistics, probability, and more.
    d. Advanced Spreadsheets: Using pivot tables, VLOOKUP, QUERY functions, and macros.
    e. Dashboard Creation: Preparing data and building various types of dashboards.
    f. Certification Prep: Training for the CompTIA Data+ exam.
    g. Training Capstone Project: Students undertook large-scale data analysis projects, developed dashboards, and performed in-depth analyses. They utilized advanced spreadsheet tools and data visualization techniques to present their findings effectively.
    h. Complementary skills learned: Running codes on personal machines and collaborative coding and teamwork.

These packages are comprehensive and involve practical skills application through capstone projects. The integration of theoretical knowledge with hands-on projects ensures that students are well-prepared for real-world challenges. Mentors should be aware of the collaborative and self-sufficient coding environments fostered by the workshops, ensuring students are prepared for both individual and team-based problem-solving.