

# Unlocking Rust: An Introduction for Educators\*

Conference Workshop

William Krehling

Department of Mathematics and Computer Science  
Western Carolina University, Cullowhee, NC 28723

`wkrehling@wcu.edu`

Rust is a relatively new programming language, the first stable release occurring in May of 2015[3]. Since then, it has been experiencing rapid growth and increasing adoption across the industry[1][2]. In 2019 Microsoft revealed that 70% of the vulnerabilities addressed through security patches in its products each year were related to memory safety issues[4]. Given Rust’s strong emphasis on memory safety without compromising performance, it’s easy to understand its growing appeal in the field of computer science.

This workshop offers an introduction to programming with the Rust Programming Language and the cargo package manager. Participants will be introduced to Rust’s syntax, and its core focus on memory safety. Key topics include the structure and syntax of Rust programs, the fundamentals of memory safety—such as ownership, borrowing with references, and lifetimes—as well as Rust’s approach to generics and inheritance, through the use of traits.

The session will begin with a concise overview of Cargo, the Rust package manager, and the explores core concepts in Rust. This will be followed by hands-on activities. The workshop will also incorporate insights and best practices drawn from classroom experience over the last five years.

## References

- [1] JetBrains RustRover Team. Is rust the future of programming? *JetBrains Rust Blog*, 2025. Accessed: 2025-05-19.
- [2] Rust Magazine Editorial Team. 2022 review: The adoption of rust in business. *Rust Magazine*, 2022. Accessed: 2025-03-9.
- [3] The Rust Team. Announcing rust 1.0. 2015. Accessed: 2025-05-19.

---

\*Copyright is held by the author/owner.

- [4] Liam Tung. Microsoft: 70 percent of all security bugs are memory safety issues. *ZDNet*, 2019. Accessed: 2024-01-22.