

# ECEN 4033/5033: Special Topics – DevOps in the Cloud

Whether building IoT applications or web-scale services, in today's world, you'll need to build software applications in the cloud.

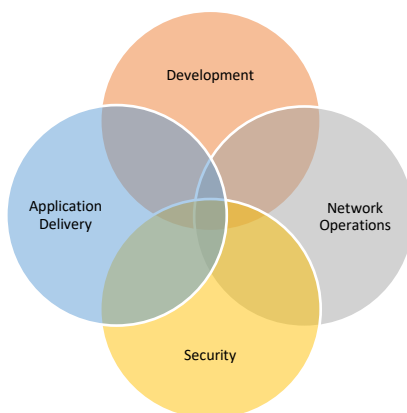
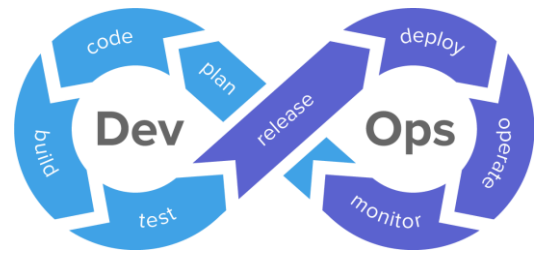
This course is about the tools and processes that make modern software projects thrive.

It's about fast, reliable and continuous deployments with zero-downtime and ability to roll-back. It's about scaling to any number of servers, design of self-healing systems capable of recuperation from both hardware and software failures and about centralized logging and monitoring of the deployments. It's about NetOps. It's about SecOps. It's about DevOps.

Topics:

1. We will discuss modern software engineering practices around **microservices** and **cloud native** applications.
2. We will have in class learning and labs around tools such as **Ansible** (for infrastructure as code), **Jenkins** (for CI/CD), **Prometheus** (for monitoring), **SPIFFE / SPIRE** (for key management), **Jaeger** (for distributed tracing), and **Helm** (for application management).
3. We will learn about **Kubernetes** from insight out – learning the internals first to really understand how Kubernetes works and why it works that way.

Ideal for both **undergraduate** and **graduate** students. These are skills companies are desperately trying to fill (I've been on the hiring side of this recently, it's not easy).



Room: ECEE 265

Time: Tu / Th 9:30-10:45

Instructor: Prof. Eric Keller