

## ITMO 453 SYLLABUS

### ITMO 453 OSS System Administration

Hours: 3 credit hours / 45 contact hours

Instructor: Jeremy Hajek

#### Textbook, title, author, and year:

*The Art of Monitoring*, James Turnbull, 2016

*Monitoring with Prometheus*, James Turnbull, 2018

#### Specific course information

- a. **Catalog description:** Students learn the administration topics and concepts of IT Orchestration, Automation, Monitoring, and Metric Collection. Topics include configuring industry standard automation tooling and using scripting to achieve immutable infrastructure. Students will learn how to monitor and collect and present metrics in regards to the infrastructure they deploy.
- b. **Prerequisites:** ITMO 340 and ITMO 356

#### Specific goals for the course

- a. **Course Outcomes:** This course will enable students to be ready to design, build, and implement logging and metrics in monitored applications. Implementing these foundations will allow any system administrator to integrate logging and metric collection to correlate with business objectives.
- b. **Course student outcomes:**  
At the conclusion of this course, each student should be able to:
  - Explain the difference between push and pull metrics
  - Explain the difference between logging and metrics
  - Describe event streams are and how they are used in monitoring and metric collection
  - Explain the use of logging and metrics in regards to Operating System containers
  - Design, build, and implement logging and metrics in monitored applications

#### Topics to be covered

- a. Intro - Monitoring & Measurement Framework
- b. Managing events and Metrics & Graphing
- c. Event Routing and Collection
- d. Containers and Logs
- e. Building an app & Notifications
- f. Getting Started & Monitoring Nodes
- g. Service Discovery
- h. Alerting & Scaling and Reliability
- i. Instrumenting Applications & Logging
- j. Building Monitored Applications & Notifications