FRANKFURT UNIVERSITY OF APPLIED SCIENCES

INTERNET OF THINGS

Hands-on Session 03

Prof. Dr. Oliver Hahm

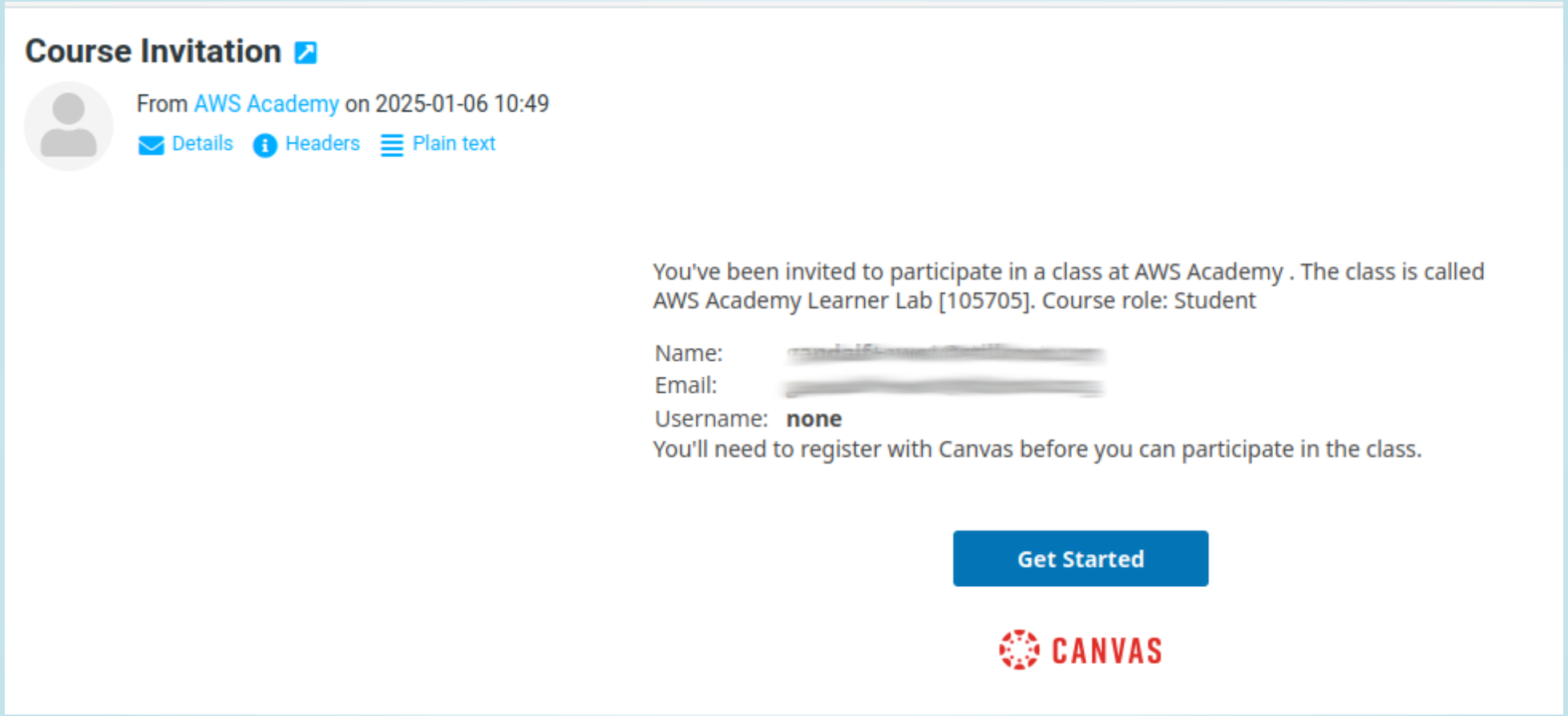
2025-01-05

AGENDA

- AWS Academy
- AWS IoT Core
- MQTT-SN

AWS ACADEMY

AWS ACADEMY – INVITATION MAIL



Course Invitation

From AWS Academy on 2025-01-06 10:49

Details Headers Plain text

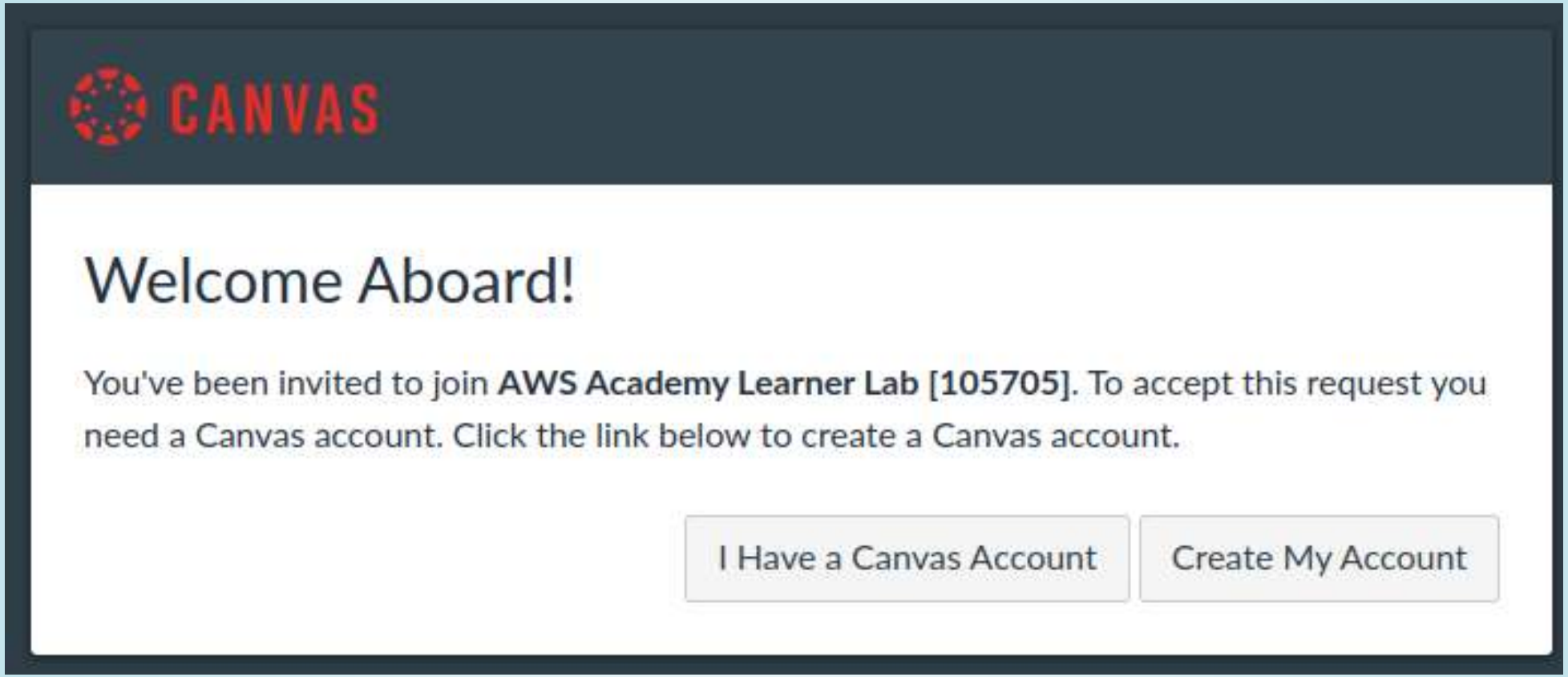
You've been invited to participate in a class at AWS Academy . The class is called AWS Academy Learner Lab [105705]. Course role: Student

Name: [redacted]
Email: [redacted]
Username: **none**
You'll need to register with Canvas before you can participate in the class.

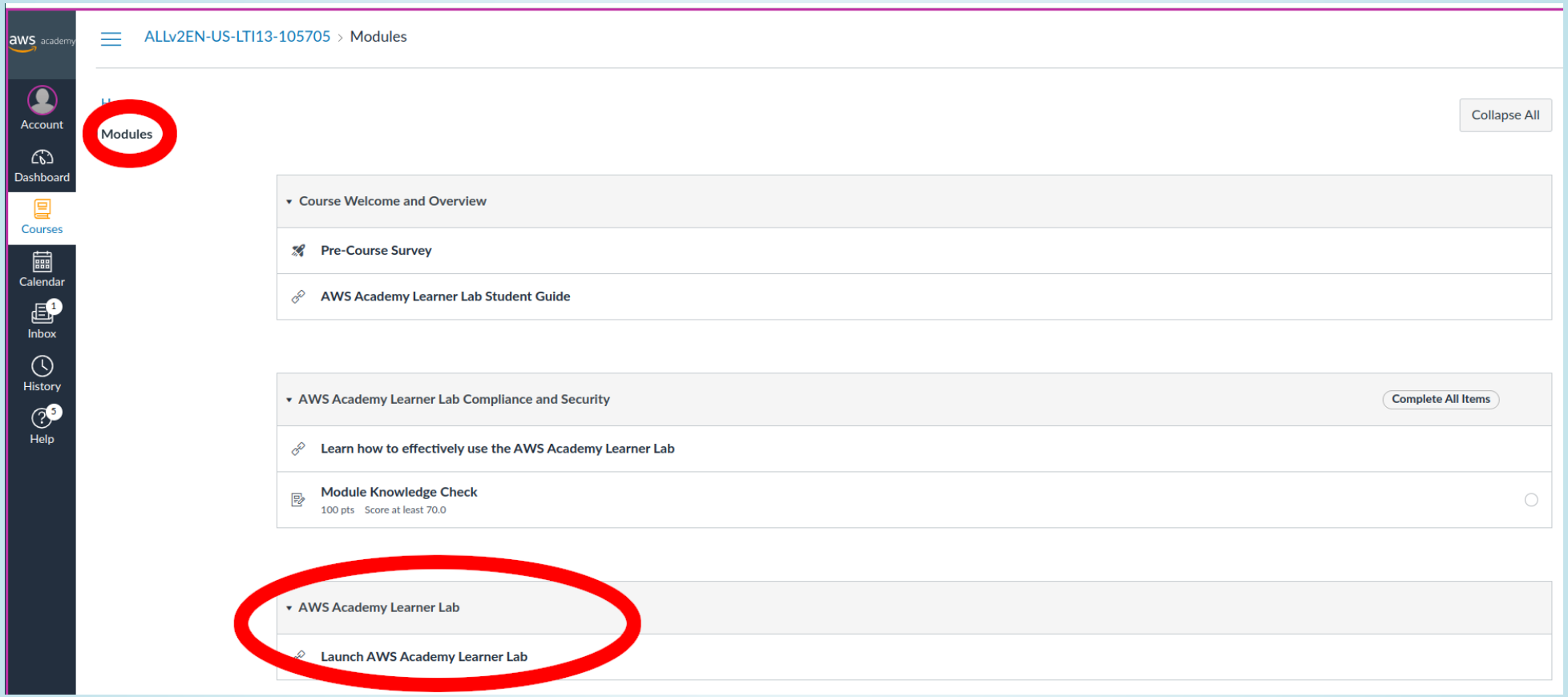
Get Started

CANVAS

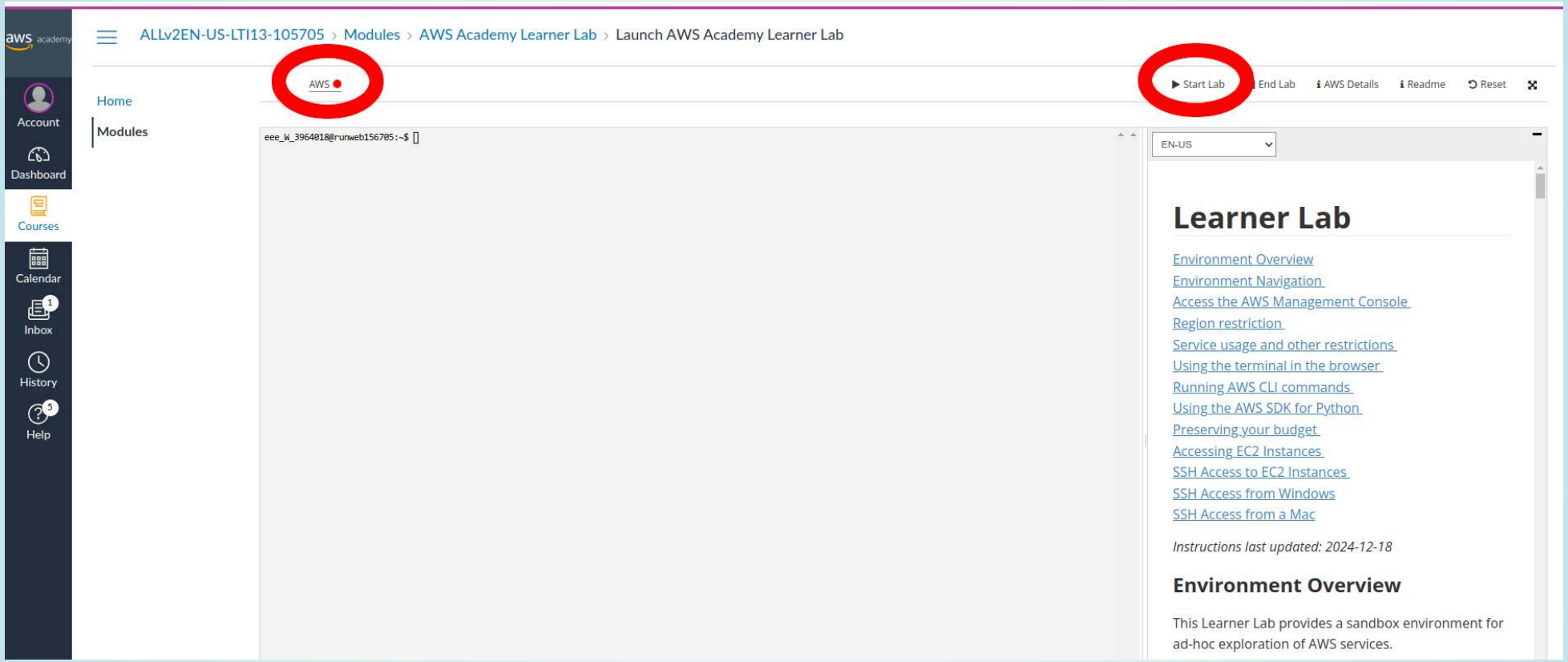
AWS ACADEMY – ACCOUNT REGISTRATION



AWS ACADEMY – LEARNER LAB



AWS ACADEMY – LEARNER LAB START



AWS IOT CORE

GETTING STARTED

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- Visit https://docs.aws.amazon.com/iot/latest/developerguide/what-is-aws-iot.html to learn about AWS IoT Core
- AWS IoT Core offers a MQTT Broker
- Get accustomed with the AWS IoT Device SDK in the language of your choice:
  - Node.js
  - Python
  - Java

DEVELOP TWO DEVICES (CLIENTS)

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- The first client should publish events
  - Publish events for at least two different topics
    - `sensor/1-237/temperature`
    - `sensor/1-237/humidity`
  - The published values should vary within a reasonable range (e.g., temperature between 15°C and 30°C, humidity between 30% and 85%)
- The second client should subscribe to the topics above
  - If the values for temperature and humidity are above or below a certain threshold, the client should trigger a warning
  - The warning should published to the topic
    - `sensor/1-237/alert`

MQTT-SN

MQTT-SN BROKER OR GATEWAY

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- The AWS IoT Core MQTT Broker only supports MQTT (over TCP)
- TCP is often too heavy-weight for constrained IoT Devices
  ➡️ MQTT-SN (over UDP) is often preferrable
- Broker or gateway for MQTT-SN:
  - RSMB: Really Small Message Broker
- Gateway only:
  - Paho Eclipse Gateway

CONNECT A CONSTRAINED DEVICE

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- Modify the first client in a way that it uses MQTT-SN instead of MQTT
- The second client should remain untouched
- If you haven’t configured a Gateway, you need a dedicated forwarder
- MQTT-SN clients are provided by RSMB and Paho