



**MARMARA UNIVERSITY
FACULTY OF ENGINEERING
ENVIRONMENTAL ENGINEERING DEPARTMENT**

**ENVE 4197/4198 ENGINEERING PROJECT
PROPOSAL FORM
FALL 2019**

Instructor : Prof. Dr. Kozet YAPSAKLI

Project Title : The effect of heavy metals on Anammox

Proposal No. : KozetYapsakli

Number of Students : 2

Requirements (from students) :

Scope of the Project :

The scope of the project is to evaluate short-term effects of selected heavy metals on Anammox bacteria. Lab scale batch experiments will be conducted to examine how nitrogen removal rate is affected by the presence of heavy metals. The decrease in nitrogen removal rate will be used to determine threshold inhibitory heavy metal concentrations.

Hardware/Software/Lab/Equipment Requirements :

Background knowledge on ammonia, nitrite and nitrate measurement will be required to conduct experiments.

Development Plan :

1. Anammox biomass will be firstly enriched in a sequencing batch reactor. Every day, students are required to feed the system with synthetic feed. This way, enriched biomass will be used in short term exposure experiments.
2. Anammox bacteria will be contacted with varying concentrations of heavy metal in a vial to examine the effect of heavy metal on the process.