A QUICK START GUIDE TO PROBLEM BASED LEARNING (PBL)

Dr David Palomas, Chemistry Department
Academic Away Day, 9th September 2024

Flipped Classroom

Educational Materials

- Good Quality
- Engaging

Active Learning Session

Problem Based Learning (PBL)

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Problem Based Learning (PBL)

What is PBL?

Problem-based learning (PBL) is a student-centred approach to learning in which students work to solve open-ended problems in real-life scenarios

- Learning by the investigation, explanation, and resolution of problems, and reflection on the learning experience.
- Students work in collaborative groups
- The teacher is as a mentor and facilitator of the discussions, without interfering with the students' train of though

A Quick Start Guide to PBL

(In the context of Sustainable Chemistry in Industry)

Buse Sonmez
(2nd year summer TA)

- **Support academics, PGTAs and students in their transition from traditional lecturing to PBL.**
- **Help students become familiar with roles in industry**
- **Provide a template for the implementation, delivery and assessment of PBL.**

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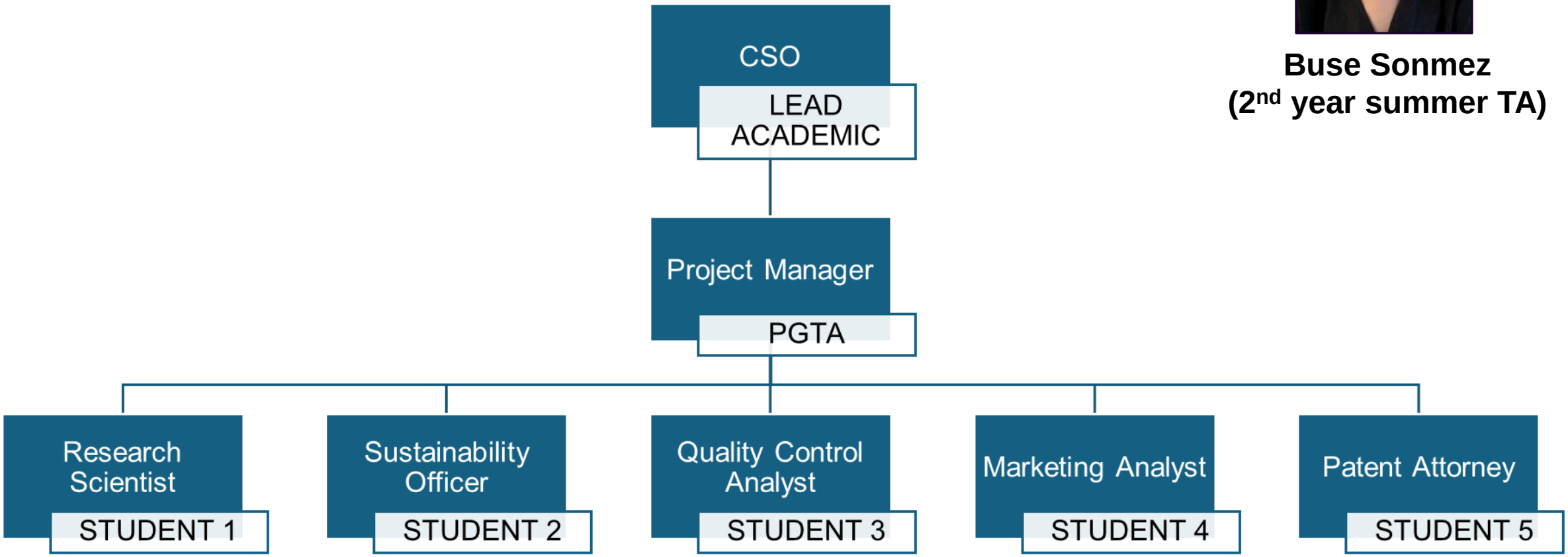

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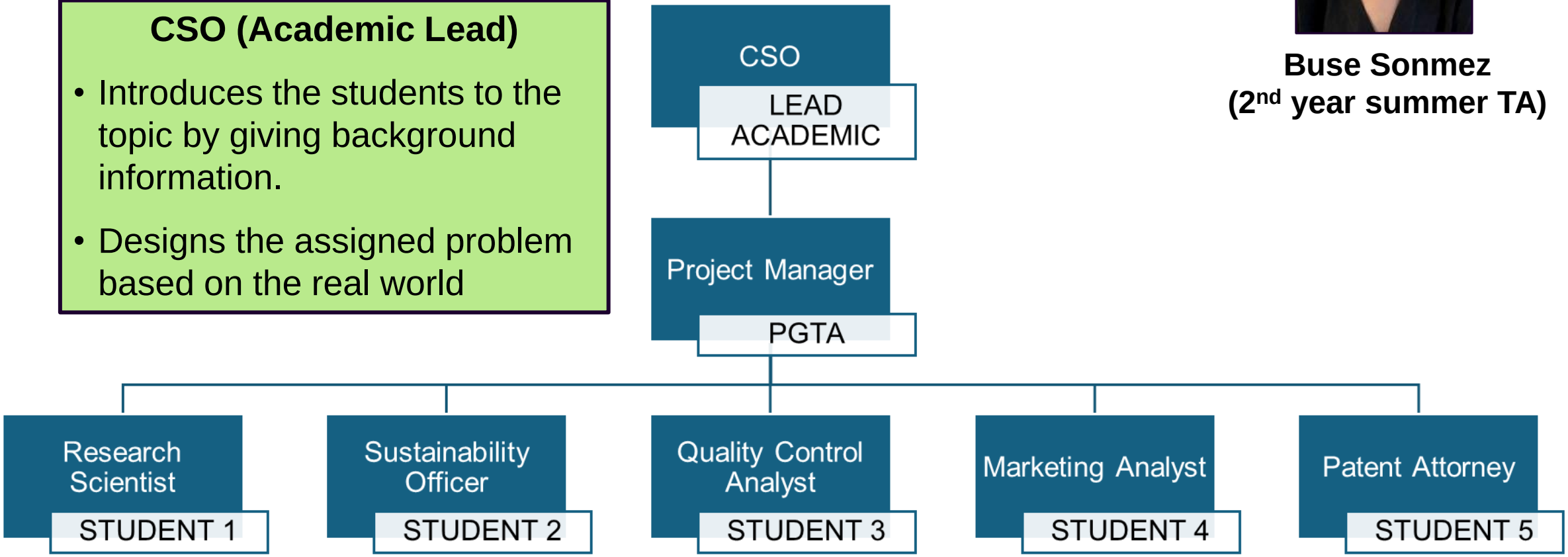
CSO (Academic Lead)

- Introduces the students to the topic by giving background information.
- Designs the assigned problem based on the real world



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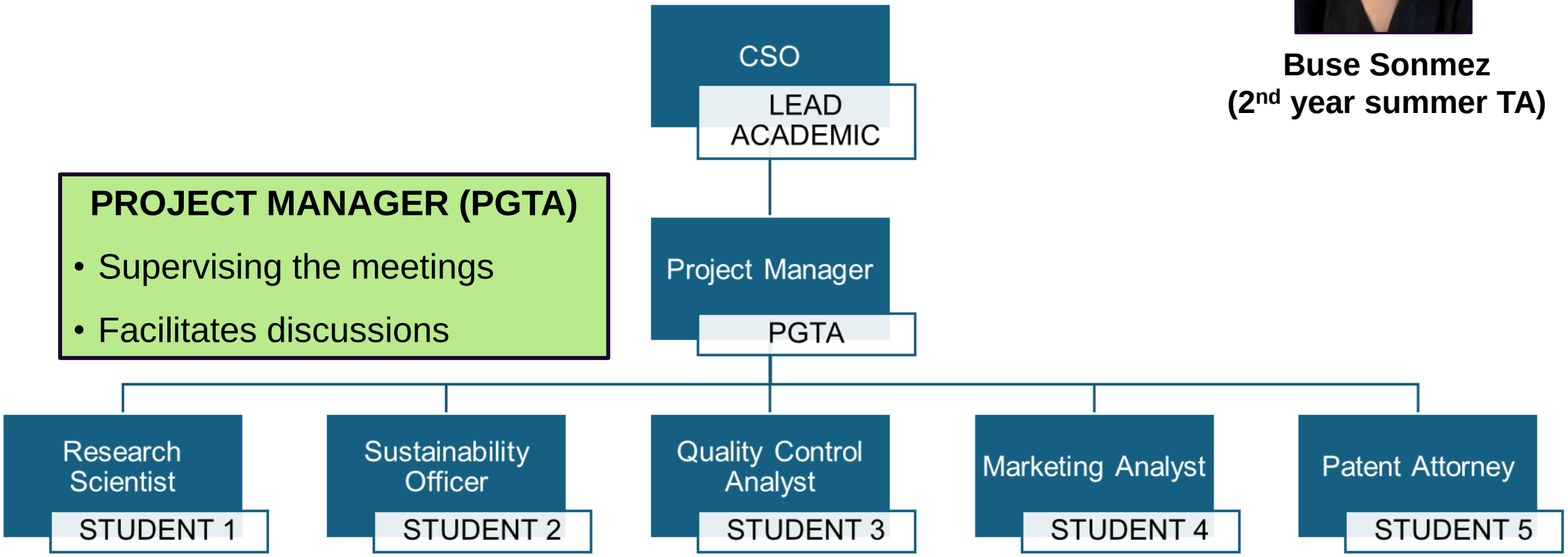
PROJECT MANAGER (PGTA)

- Supervising the meetings
- Facilitates discussions



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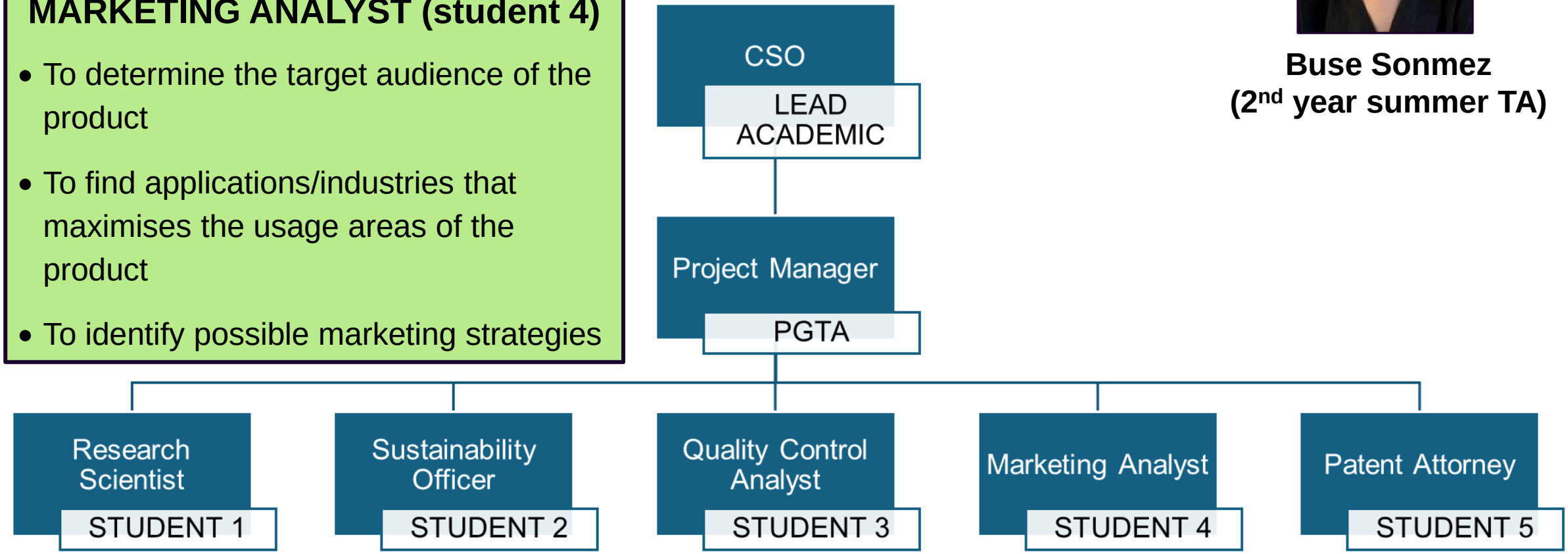
MARKETING ANALYST (student 4)

- To determine the target audience of the product
- To find applications/industries that maximises the usage areas of the product
- To identify possible marketing strategies



PBL Structure. Intro Session

- Students form groups we call **companies**
- Every company is assigned a PGTA (**Project Manager**)
- The Lead Academic (**CSO**) presents the real-life problem that the companies need to solve in three PBL sessions

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(2nd year summer TA)

PBL Structure. Intro Session

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The preferred industrial route for the synthesis of Polyethylene terephthalate (PET) involves the use of the base chemicals from crude oil ethylene and p-xylene

Your companies are to propose a sustainable production of PET by a selecting of an appropriate biomass **(workshop 1),** designing chemical processes for the production of PET **(workshop 2)** and designing protocols for the recycling of PET **(workshop 3)**.

PBL Assessment

- **Assessment that makes sense in the real word**

(Short written report, progress meeting style presentation…)

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(2nd year summer TA)

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Companies pitch their projects to a group of (academic) investors.