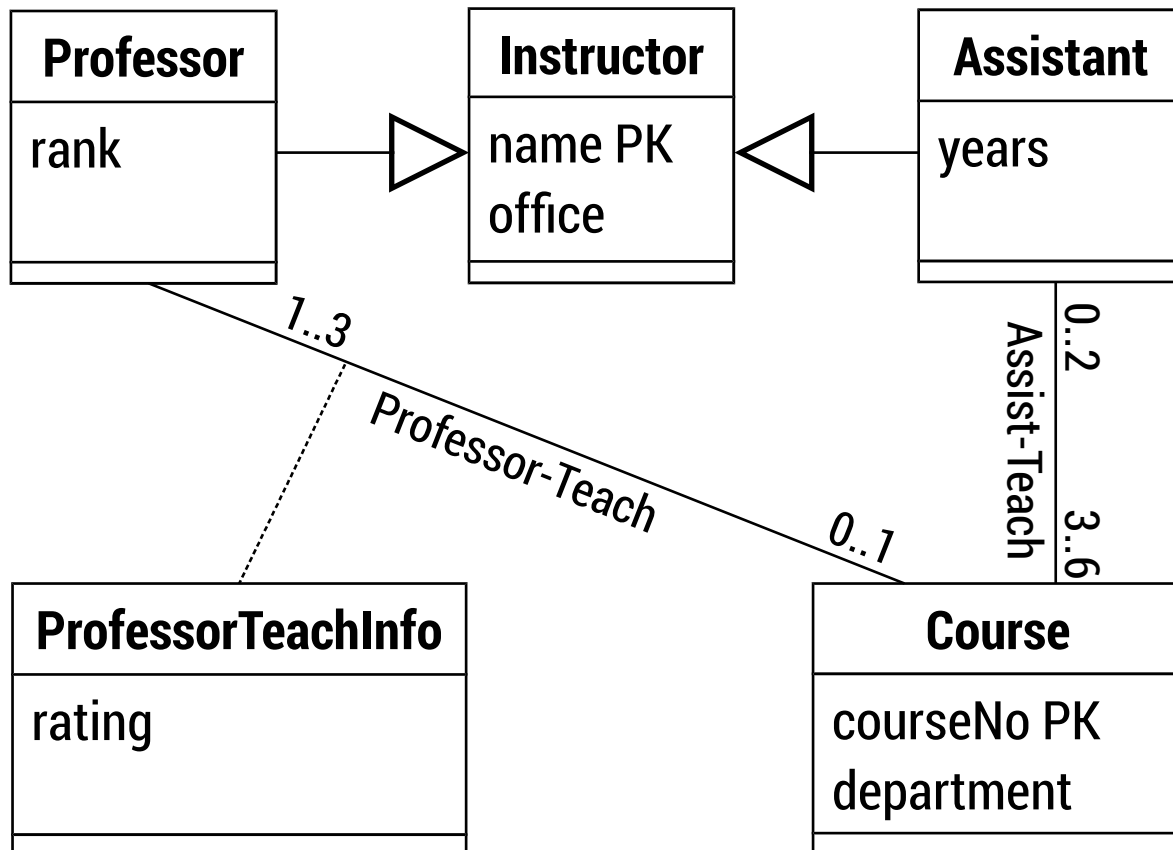# Advanced Management of Data
Exercise 3 Topic 1:
Unified Modeling Language

Consider the following UML diagram

a) What are the minimum and maximum total number of instructors for a given course?

b) What is the minimum and maximum teaching load (number of courses) for professors and for assistants?

c) Translate the UML diagram to a relational schema.

d) Specify a minimal key for each relation in your solution to part c.

e) Suppose by default attribute values cannot contain null. Does your solution to part c require any attributes to permit null values?

Draw an UML diagram that models this information
Translate the UML diagram to a relational schema

Every person has a name, a residence, at least one email-address and it also may have several phone-numbers. Each residence consists of a street name, a house number, a city, a postal code and a state. There lives only one person at each residence, but there may be free residences without any inhabitants. There are two types of persons: students, which have a matriculation number and professors, which have a salary.

Draw an UML diagram that models this information
Translate the UML diagram to a relational schema

A company produces products that are assembled from parts. A part is either manufactured internally or bought from a supplier. Each product and part have unique names. The company keeps track of the quantity in stock of the different parts and knows its own manufacturing costs. For purchased parts it has different suppliers, each with their own prices. The suppliers are known by name and address.

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If you need additional exercise, then draw an UML diagram that models information from your module handbook

- Grab your module handbook ("Studienordnung") and draw an UML diagram that models your course of studies, so that you easily can show somebody, what you have to do. You may find your module handbook at https://www.tu-chemnitz.de/studentenservice/sopo/

- As an inspiration I show you mine, but yours should look more complicated ;)