

# Metabolomics Research at University of Applied Sciences Leiden

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## 1. Introduction

Within the metabolomics research community, it is not commonly known that also at Universities of Applied Sciences ('Hogescholen'), research is being carried out.

The Leiden Centre for Applied Bioscience (LCAB) is the research lab of the Faculty of Science & Technology, University of Applied Sciences Leiden ('Hogeschool Leiden'). Within the LCAB, several research groups work on developing and applying modern life science technology, such as genomics, cultureomics and metabolomics methods.

In this presentation, I will introduce the research group Metabolomics and elaborate on its mission, activities and first results.

## 2. Approach

The mission of the research group Metabolomics is developing and applying analytical chemical technology to answer complex biological research questions with detailed chemical information. Applied research for higher professional education aims at the implementation of results in practice (answers to society).

The group is equipped with LC-MS, GC-MS and ICP-OES. A special focus is miniaturization of analytical technology in order to meet the demands of analysing minute samples, such as organs-on-chip samples. There is a very strong collaboration with Leiden Academic Centre for Drug Research, Division of Systems Biomedicine & Pharmacology, Leiden University (group of Thomas Hankemeier).

## 3. Results

Within the research group, chemistry teachers and internship students carry out the research. Currently, there are four projects running:

1. Measuring minerals in tomatoes using ICP-OES
2. Assessing functionality of livers-on-a-chip using LC-MS
3. Measuring metabolites in fingerprints using GC-MS
4. Measuring metabolites in feces to study gut problems in athletes
5. Measuring metabolites in surface water in order to assess its ecological health

Since education is a priority of Universities of Applied Sciences, it is very important that the research activities can be translated into teaching material. To provide a platform for this, we have developed a Minor Metabolomics. Students who have successfully completed this minor will be ready to join a metabolomics laboratory as specialized technician who will be able to contribute to metabolomics research.

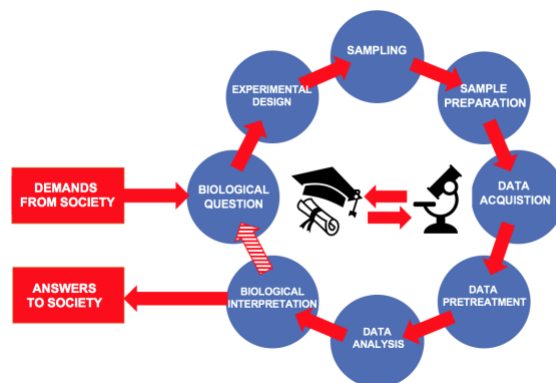


Figure 1. Research and teaching about all aspects of metabolomics are integrated within the research Metabolomics at University of Applied Science Leiden