

# Syllabus

## *Kursbeschreibung*

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| <b>Titel der Lehrveranstaltung</b>                  | Sensors and biosensors for agri-food applications                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Code der Lehrveranstaltung</b>                   | 44753                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Zusätzlicher Titel der Lehrveranstaltung</b>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Wissenschaftlich-disziplinärer Bereich</b>       | IINF-01/A                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Sprache</b>                                      | Englisch                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Studiengang</b>                                  | Master in Lebensmittelwissenschaften für Innovation und Authentizität                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Andere Studiengänge (gem. Lehrveranstaltung)</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Dozenten/Dozentinnen</b>                         | dr. Manuela Ciocca,<br>Manuela.Ciocca@unibz.it<br><a href="https://www.unibz.it/en/faculties/engineering/academic-staff/person/44873">https://www.unibz.it/en/faculties/engineering/academic-staff/person/44873</a><br>dr. Giuseppe Ciccone,<br>Giuseppe.Ciccone@unibz.it<br><a href="https://www.unibz.it/en/faculties/engineering/academic-staff/person/49145">https://www.unibz.it/en/faculties/engineering/academic-staff/person/49145</a> |
| <b>Wissensch. Mitarbeiter/Mitarbeiterin</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Semester</b>                                     | Erstes Semester                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Studienjahr/e</b>                                | 2nd                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>KP</b>                                           | 6                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Vorlesungsstunden</b>                            | 30                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Laboratoriumsstunden</b>                         | 30                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Stunden für individuelles Studium</b>            | 90                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Vorgesehene Sprechzeiten</b>                     | 18                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Inhaltsangabe</b>                                | 1. Sensor materials and technologies<br>2. Basics of sensors and measurement techniques                                                                                                                                                                                                                                                                                                                                                        |

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|                                                                                           | <p>3. Overview and operational principles of chemical, optical, physical and biosensors</p> <p>4. Applications of sensor systems to food science and agriculture</p> <p>5. Outlook in future sensor technologies</p>                                                                                                                                                                                                                                                                                                                                                |
| <b>Themen der Lehrveranstaltung</b>                                                       | <p>Sensors materials and technologies</p> <p>measurement techniques</p> <p>operational principles of sensors</p> <p>applications of sensors</p>                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Stichwörter</b>                                                                        | sensors; biosensors; food science; agriculture                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Empfohlene Voraussetzungen</b>                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Propädeutische Lehrveranstaltungen</b>                                                 | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Unterrichtsform</b>                                                                    | Lectures and Lab sessions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Anwesenheitspflicht</b>                                                                | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Spezifische Bildungsziele und erwartete Lernergebnisse</b>                             | <p>The course aim is to provide the attendants theoretical and practical fundamentals of the operation principles of sensors. Particular emphasis will be devoted to chemical, physical and biosensors used in food technology and agriculture. The aim of the course is to offer a general overview of scientific contents combined with specific professional skills and knowledge. In addition, the student will acquire soft skills connected to scientific presentations or reports, as well as practical skills related to sensor use and implementation.</p> |
| <b>Spezifisches Bildungsziel und erwartete Lernergebnisse (zusätzliche Informationen)</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Art der Prüfung</b>                                                                    | presentation + oral                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Bewertungskriterien</b>                                                                | The presentation and the oral assessment will be averaged to a final grade.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Pfichtliteratur</b>                                                                    | Slide materials from the course                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Weiterführende Literatur</b>                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Weitere Informationen</b>                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Ziele für nachhaltige</b>                                                              | Industrie, Innovation und Infrastruktur                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

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| Entwicklung (SDGs) |  |
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