# Module Descriptions

| | |
|---|---|
| Module designation | **Radiobiology** (course code MPB 2286) |
| Semester(s) in which the module is taught | 3rd semester of Bachelor Programme in Biology |
| Person responsible for the module | 1. Dr. Elvi Rusmiyanto PW, M. Si |
| Lecture (s) | 1. Dr. Elvi Rusmiyanto PW, M. Si |
| Language | Indonesia |
| Names of other study programmes with which the module is shared | - |
| Relation to curriculum | Elective course |
| Teaching methods | Collaborative learning |
| Workload (incl. contact hours, self-study) | Total workload: 4.38 ECTS<br>Lecture: 26,6 hours (0,99 ECTS)<br>Assignment: 46.5 hours (1.72 ECTS)<br>Self-study: 44.9 hours (1.67 ECTS) Self-study hours are estimation numbers of hours; each student will approach studying in different ways |
| Credit points | 2 credits |
| Required and recommended prerequisites for joining the module. | - |
| Module objectives/intended learning outcomes | ***Intended Learning Outcomes (ILO)***<br>**Knowledge (ILO-2)**<br>Able to integrate and apply biological science and other scientific fields that support the development of biological science.<br>**General Skill (ILO-4)**<br>The ability to engage in critical, creative, and innovative thinking, coupled with a commitment to lifelong learning in the fields of biological science and entrepreneurship.<br>***Course learning outcomes (CO)***<br>**CLO 05.** Students are able to integrate various scientific disciplines, including chemistry, physics, mathematics, and information technology, is fundamental to the advancement and support of biological sciences.<br>**CLO 16.** Students are able to correlate biological sciences with global issues, including climate change, biodiversity conservation, and environmental sustainability.<br>**CLO 22.** Students are able to develop innovative solutions to biological challenges or to manage biological resources through a creative and multidisciplinary approach, facilitated by a commitment to lifelong learning. |

| | |
|---|---|
| Content | In the Radiobiology course, students are expected to understand, explain, and utilize radioisotopes through lectures covering knowledge of radiation sources, basic principles of radiation physics, interaction of radiation with matter, dosimetry and radiation measuring instruments, radiation control methods and working with radioisotopes, principles of the autoradiography process, radiation hazards to humans, techniques for transporting radioactive materials, regulations on the use of radioactive substances, and applications of isotopes in various fiel. |
| Examination forms | Midterm (written test) 30%<br>Final Exams (written test) 40%<br>Assignment (scientific paper, presentation, literature review) 20%<br>Activity (quiz or class discussion) 10% |
| Study and examination requirements | 75% attendance |
| Reading list | 1. Alatas Zubaidah, Rismiyanto, et al. 2000. Buku Pintar Nuklir. BATAN. Jakarta.<br>2. Artitin, C. (2023). Biologi Radiasi. Deepublish.<br>3. Joiner, M., & van der Kogel, A. (2018). Basic Clinical Radiobiology (5th ed.). CRC Press.<br>4. Syaifudin, M. (2021). Biologi Radiasi: Dasar-dasar dan Aplikasi. BRIN Press<br>5. Joiner, M. C., & Potter, C. A. (Eds.). (2014). Radiation Biology: A Practical Approach. Wiley-Blackwell.<br>6. |