COURSE OUTLINE

(1) GENERAL

SCHOOL	Health Sciences		
ACADEMIC UNIT	Medicine		
LEVEL OF STUDIES	Post-graduate		
COURSE CODE	**MKBB202**	**SEMESTER**	**B (2nd)**
COURSE TITLE	**Literature Research**		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Research Literature analysis in Research Host Laboratory	12	15
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Special background, skills development (post-graduate education training in Research Host Lab)
PREREQUISITE COURSES:	MKBB101, MKBB102, MKBB103, MKBB104, MKBB105 (success in at least 3 of the above 5 courses)
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek and English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBSITE (URL)	http://msc-mcbb.ac.uoi.gr/Courses.Semester B2n

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Students are expected to acquire state-of-the-art knowledge in the research themes studied in their Research Host Laboratory and become familiarized with the evaluation and analysis of research literature in modern aspects of molecular and cellular biology.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
……
Others…
…….

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Adaptation to new situations (in the context of the hosting research team)
- Decision-making
- Working independently
- Team work
- Working in an interdisciplinary environment
- Exposure/working in an international environment (due to involvement in the program of researchers and research teams from countries outside Greece)
- Respect for difference and multiculturalism
- Criticism and self-criticism
- Production of free, creative and inductive thinking
- Design, development and delivery of original lectures that need combined knowledge and insight in modern aspects from the recent scientific literature

(3) SYLLABUS

Students are actively engaged in research study in a Research Host Lab, participate in research team meetings and relevant bibliography seminars, and in Joint Seminars held by members of all collaborating departments/institutes of the University of Ioannina and BRI-FORTH involving lectures by researchers from the University of Ioannina, BRI-FORTH, or other Universities or Research Centres from Greece and abroad, in current themes of Biotechnology, Biosciences, and Biomedical Research.

Objectives
Acquisition of state-of-the-art knowledge in research themes of the Research Host Lab and familiarization with evaluation and analysis of research literature in molecular and cellular biology.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Students are actively engaged in research study in a Research Host Lab and participate in face-to-face research team meetings, delve in scientific literature research (studying peer-reviewed articles available through established online databases and platforms) and attend lectures on current research themes delivered by invited speakers from UOI, BRI-FORTH, or other Universities or Research Centers in Greece and abroad, through the internet (zoom platform).
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Powerpoint slides and videos are used in the invited lectures, presentation of articles from the research literature and group meeting presentations. Invited lectures in the context of the series of Joint Seminars in Biotechnology, Biosciences, Biomedical Research, are delivered through the zoom platform (see https://urci.unit.uoi.gr/ibs/gr/seminars.html). Links (doi number, pubmed link, other sources) for the research articles presented by the students are given in the e-course webpages of the University of Ioannina. Complementary teaching material is also accessible to students through e-course system and appropriate databases (pubmed, scopus, pdb, etc.).

<table>
<tr><td></td><td>E-mail addresses of the teaching staff are freely used as a means of communication with the students.</td></tr>
<tr><td>TEACHING METHODS
The manner and methods of teaching are described in detail.
Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.

The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Research team meetings</td><td>60</td></tr>
<tr><td>MSc-UOI-FORTH Joint Seminars in Biotechnology, Biosciences, and Biomedical Research</td><td>30</td></tr>
<tr><td>Analysis of bibliography relevant to the MSc project</td><td>30</td></tr>
<tr><td>Preparation for presentation of peer-reviewed articles from the research literature</td><td>40</td></tr>
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<tr><td>Course total</td><td>160</td></tr>
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<tr><td>STUDENT PERFORMANCE EVALUATION
Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</td><td>Language of evaluation: Greek and English
Methods:
(a) Intermediate evaluation of the student progress in research bibliography study based on the student presentations of peer-reviewed articles related to their project in the research team meetings (group meetings). Students are evaluated by the supervisor-team leader for understanding of the research article, comprehensiveness and presentation clarity.
(b) Open-audience oral presentation of two research articles linked with important aspects of Molecular and Cellular Biology and Biotechnology, that have been proposed by the teaching staff of the program. Students are expected to present with clarity and comprehensiveness the research context, rationale, aims, objectives, methodology, experimental results and perspectives of the relevant research articles. The student presentation is evaluated by both the supervisor-team leader (the supervisor contributes to the final grade by 50%) and the other teaching staff of the program who attend the presentation and act as co-examiners (the average grade of all co-examiners contributes to the final grade by another 50%).

Evaluation criteria:
Grades are given by both the supervisor-team leader (50% of the final grade) and other teaching staff of the program (their average gives another 50% of the final grade). The rating given by the supervisor-team leader is based not only on the final presentation but also on the student’s overall research bibliography study in the lab and their literature presentations in the research team meetings. The ratings given by other teaching staff are based on the open-audience</td></tr>
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	presentations. Students are evaluated for the clarity, comprehensive analysis of the research articles, and their general understanding of the research theme, concepts and rationale of the articles presented. Student grades are based on a decimal scale and given with accuracy of ±0.5 (grades from +0.25 and above or +0.75 and above are approximated by +0.5 or +1.0, respectively; grades below +0.25 or +0.75 are approximated by +0.0 or +0.5 respectively). All exam procedures and evaluation criteria are included in the program rules and regulations, which are accessible at the website http://msc-mcbb.ac.uoi.gr.

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Peer-reviewed articles from the literature related to the student's MSc research project and the research field interests and work in the Host Lab, as well as articles relevant to the themes of Joint Seminars in Biotechnology, Biosciences, and Biomedical Research.

- Related academic journals:

Indicatively: *Nature, Cell, Science, Nat Chem Biol, Nat Protocols, Nat Rev Genet, Cell Rep, Sci Rep, Mol Cell, Dev Biol, Dev Cell, Dev Growth Differ, Stem Cell Res, J Cell Sci, J Mol Biol, J Biol Chem, Current Biology, Nat Rev Cancer, Trends Cell Biol, Cancer Res, Epigenetics, Proteomics, Nucleic Acids Res, Nat Biotechnol, Mol Biotechnol, Enzyme Microb. Technol,* etc., depending on particular research interests and work related to the Host Lab, and the themes of Joint Seminars in Biotechnology, Biosciences, and Biomedical Research.