Doc. 300.1.2

Higher Education Institution's Response

Date: 1/8/2023

- **Higher Education Institution:**
  European University Cyprus
- **Town: Nicosia**
- **Programme of study**
  Name (Duration, ECTS, Cycle)

  In Greek:
  «Βιολογία του Καρκίνου (18 Μήνες/90 ECTS, Μεταπτυχιακό)»

  In English:
  "Cancer Biology (18 Months/90 ECTS, Master of Science)"
- **Language(s) of instruction:** English
- **Programme's status:** Currently operating
- **Concentrations (if any):**

  In Greek: Concentrations
  In English: Concentrations

The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the "Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws" of 2015 to 2021 [L.136(I)/2015 – L.132(I)/2021].

A. Guidelines on content and structure of the report

- *The Higher Education Institution (HEI) based on the External Evaluation Committee's (EEC's) evaluation report (Doc.300.1.1 or 300.1.1/1 or 300.1.1/2 or 300.1.1/3 or 300.1.1/4) must justify whether actions have been taken in improving the quality of the programme of study in each assessment area. The answers' documentation should be brief and accurate and supported by the relevant documentation. Referral to annexes should be made only when necessary.*

- *In particular, under each assessment area and by using the 2nd column of each table, the HEI must respond on the following:*

    - *the areas of improvement and recommendations of the EEC*
    - *the conclusions and final remarks noted by the EEC*

- *The institution should respond to the EEC comments, in the designated area next each comment. The comments of the EEC should be copied from the EEC report **without any interference** in the content.*

- *In case of annexes, those should be attached and sent on separate document(s). Each document should be in *.pdf format and named as annex1, annex2, etc.*

1. Study programme and study programme's design and development
(ESG 1.1, 1.2, 1.7, 1.8, 1.9)

Areas of improvement and recommendations **by EEC**	Actions Taken by the Institution	For Official Use ONLY
1. We recommend first to increase the number staff members in dependence of the number of MSc students	Since the first accreditation of the program in Fall 2019, the following faculty members have been added in the teaching personnel of the M.Sc. Cancer Biology: 1. Assoc. Prof Maria-Ioanna Christodoulou, Immunology. 2. Assist. Prof Andreas Stylianou, Cancer Mechanobiology & Applied Biophysics. 3. Assist. Prof Malamati Kourti, Pharmacy. 4. Assist. Prof Christiana Neophytou, Molecular Biology. With these additions, there are now 11 full-time faculty members and 3 Adjunct Professors engaged in the program.	Choose level of compliance:
2. We recommend the increase the amount of teaching and research space (we recognize that a new building is in construction). This must include additional equipment.	The new building under construction is expected to be ready by the end of 2023. This will include the following Labs indicatively equipped, among others, with the following facilities/infrastructure: 1. In the Pharmaceutical Chemistry/Biochemistry Lab: 4 fume hoods, 1 class II biosafety cabinet, 1 CO_2 Incubator, 2 HPLC instruments; 2. In the Molecular and Cell Biology Lab: 4 fume hood, 1 class II biosafety cabinet, ChemiDoc imaging system, Digital Real-time PCR, 1 CO_2 Incubator, 1 Incubator	Choose level of compliance:

	for bacteria, 1 centrifuge for 15-50 ml, 1 PCR machine, 1 Microscope; 3. In the Multidisciplinary Research Lab (interconnected with cell culture lab), 1 Microscope, 2 CO_2 Incubators, 1 benchtop NMR, 1 FTIR, 1 Rotary evaporator, 1 pH-meter, 1 turrax homogenizer; and, 4. Dedicated Tissue Culture Lab. All the four labs and their equipment will be used both for research and teaching activities, covering any additional number of students needs of the M.Sc. Cancer Biology program.	
3. We recommend that steps are taken to ensure the supplies for consumables perhaps by allocating a definitive amount of money for each master project.	Following the recommendation by the External Evaluation Committee, we have included 1000 euros for the purchase of consumables for each student's M.Sc. thesis project, in the 2023-2024 School of Sciences budget.	Choose level of compliance:
4. We recommend to have an interview as part of the admission process.	Following the recommendation by the committee, we have now included an interview as part of the admission process. Please find below the updated admission criteria of the program: 1. All applicants must have successfully completed an undergraduate degree from a recognized academic institution in Biomedical Sciences or Health Sciences or Physical Sciences–related (with adequate Biology background) or a Doctor of Medicine (M.D.), Veterinary Medicine (DVM), Dental Surgery (B.D.S.). 2. Applicants should hold an undergraduate degree with a minimum G.P.A. 2.5 or	Choose level of compliance:

	"Second Class Honours" (UK Universities) or "Very Good" (Greek or Cypriot Universities) or any other equivalent grade. 3. Proof of English language proficiency: any of the following certifications are accepted as proof of "Very Good Knowledge" of the English language at level B2-C1 of the Common European Framework of Reference for Languages (CEFR): • High School leaving certificate of a recognised secondary education school where the language of instruction was in English. • A Bachelor's degree or equivalent from a recognised higher education institution where the language of instruction was in English. • International examinations in English Language, for instance English IGCSE or G.C.S.E. (or G.C.E.)-O' Level with grade of "C" or above; Proficiency (Cambridge/Michigan) IELTS with a score equalling to Band 6.5 and above; Test of English as a Foreign Language (TOEFL) with a minimum score of 550 (paper-based total) or 213 (computer based) or 72 (internet-based); Password Plus test with minimum grade 6; or any other equivalent examination. • The English Placement Test of European University Cyprus prior to admission to the Program with a passing grade in ENL102.	

	4. Interview: All short-listed applicants will be invited for an interview. 5. Reference Letters: Provide names and contact details of two individuals who can provide references for the applicant. If the Department considers it necessary, it will contact them directly. 6. The Department might ask the applicants for additional documents, as well as to adopt any additional criteria it deems necessary.	
5. We recommend to have more clear processes for considering and implementing student feedback as appropriate.	European University Cyprus has adopted a clear and defined policy for evaluating students' feedback on their learning experience, approved by the Senate (See Appendix I). As indicated in the process, upon completion of the process, students' feedback reports are disseminated to the Dean, Department Chairperson, and Program Coordinators, for further action, including hiring and/or rehiring of teaching personnel, improvement of course content, teaching approaches and overall improvement of the curriculum during the Program Evaluation Review (PER) process. In this way, student feedback is taken into consideration and becomes integrated in the continuous development of the M.Sc. Cancer Biology program.	
6. The "partially compliant" score for the term "public information" is related to the not yet available pass rates of the examinations.	The pass rates for all course examinations (undergraduate and post-graduate) are clearly stated: • on EUC Website (please see here), and	Choose level of compliance:

	• on every course outline which is uploaded on Blackboard platform at the beginning of each semester (please see example in page 7 of Appendix II).	

2. Student – centred learning, teaching and assessment
(ESG 1.3)

Areas of improvement and recommendations **by EEC**	Actions Taken by the Institution	For Official Use ONLY
1. The number of options available for students regarding their courses (for example enrichment for bioinformatics and artificial intelligence tools either through integrations in the current structure or through adding specific modules) and scientific projects should be increased.	We thank the EEC for the recommendation. In order to enrich the number of options and course contents in topics related to Bioinformatics and artificial intelligence tools, we proceeded to the following changes: 1. Enrichment of the MCB645 Bioinformatics course content with the inclusion of two sessions on the Basics of R-studio and Python, which will be delivered by Dr Vicky Papadopoulou-Lesta (Associate Professor in Algorithms & Complexity of the Department of Computer Science and Engineering, of the School of Sciences of EUC) 2. Enrichment of the MCB630 Cancer Diagnostics and Therapeutics course content with the inclusion of two sessions on Artificial Intelligence (AI) applications in medical imaging for cancer management, AI-related techniques in x-rays, CT, MRI, PET/CT imaging, and AI applications in prediction of patient risk assessment, early diagnosis and prognosis. Please see revised Course Syllabi in Appendix III, where we have highlighted for the convenience of the EEC and CY.Q.A.A. the additions and	Choose level of compliance:

	adjustments made on the respective syllabi with yellow highlights. Moreover, to further enrich the number of options of available M.Sc. Thesis projects including Bioinformatics and AI tools in cancer research, we have added faculty with the related expertise (e.g. Prof. Apostolos Zaravinos, Dr. Marianna Christodoulou, Dr. Vicky Papadopoulou-Lesta, Dr Anastasia Ioannou, Dr. Irene Polycarpou) to provide additional M.Sc. Thesis topics. The full list of available topics is provided to students in week 1 of the first semester, so they can communicate with possible supervisors and submit their preferences.	

3. Teaching staff
(ESG 1.5)

Areas of improvement and recommendations **by EEC**	Actions Taken by the Institution	For Official Use ONLY
1. There are still not enough faculty in with substantial ongoing research in EUC facilities. This is overcome by including more collaborating/visiting faculty and other senior research faculty from the medical school and the computer sciences departments in EUC School of sciences. The relative lack of local staff for teaching and research should be adequate addressed by future recruitment of additional research faculty to EUC. Ultimately, the program should become self-sufficient. Additionally, we recommend more emphasis ongoing training of the teachers (for example a yearly staff retreat to update knowledge and skills as well as course review and discussion of strategies for further development of the program).	Several full-time faculty members of the M.Sc. Cancer Biology program, indicatively Prof. Papageorgis, Prof. Zaravinos, Dr. Gkretsi, Dr. Christodoulou, Dr. Neophytou, Dr. Sophocleous, Dr. Stylianou perform their experimental studies at the laboratories and facilities of EUC. They also collaborate with other research groups in Cyprus (Karaiskakio Foundation, The Cyprus Institute of Neurology and Genetics, University of Cyprus, German Oncology Center), Greece (National and Kapodistrian University of Athens, University of Crete, Biomedical Research Foundation of the Academy of Athens and others) and abroad to execute collaborative projects. What is more, also in the frame of the recently launched interdepartmental Ph.D. program of Cancer Biology-Clinical Oncology of EUC, the above and other faculty of our program collaborate with full-time faculty members of the School of Medicine [indicatively Drs. Ilias Nikas (Assistant Professor, Pathology and Cytopathology), Emmanouel Nikolousis (Associate Professor, Heamatology), Anastasis Stephanou (Professor,	Choose level of compliance:

	Molecular & Cellular Biology), Constantinos Zamboglou (Adjunct Professor, Vice Medical Director, German Oncology Center)]. As suggested, this will be further improved by encouraging even more collaborations with faculty of the School of Medicine including projects that will be related to research and teaching activities in the Master Program of Cancer Biology. Following also the EEC recommendation, we have established collaborations with faculty of the Department of Computer Science and Engineering of the EUC School of Sciences, that will further enhance our research and teaching activities in Bioinformatics and AI (as also described above). Indicatively, we have now collaborations with Drs Papadopoulou-Lesta (Associate Professor in Algorithms & Complexity of the Department of Computer Science and Engineering), and Anastasia Ioannou (Adjunct Lecturer, Computational Methods), to support our activities both in teaching and research. Regarding the committee's recommendation for recruitment of additional faculty, please see our response in item 1 of Section 1 above (p.3).	

	As for the ongoing training of the faculty, EUC provides a three-level faculty professional development (FPD) program: 1. Initial FPD for EUC newly hired faculty 2. Ongoing FPD for existing EUC faculty 3. Ad-hoc FPD on specialized and innovative interventions in teaching. Moreover, EUC faculty have additional opportunities to support their development by participating in teaching and training activities under the ERASMUS+ for staff mobility scheme. For example, during the previous academic year four full-time faculty members of the M.Sc. Cancer Biology program (namely Prof. Papageorgis, Prof. Zaravinos, Dr. Christodoulou, and Dr. Stylianou) participated in staff mobility schemes for training (e.g. advanced flow cytometry techniques, spatial transcriptomics, atomic force microscopy techniques) and teaching in the UK, Greece and the USA. Upon completion of the mobility, each faculty submits a brief report to the Departmental Council and Vice Rector for Research and External Affairs, discussing the outcomes of their activities and their impact on self-development, contribution to the program(s) of study and University.	

4. Student admission, progression, recognition and certification
(ESG 1.4)

Areas of improvement and recommendations **by EEC**	Actions Taken by the Institution	For Official Use ONLY
1. As mentioned in section 1, we recommend to have an interview as part of the admission process.	Following the recommendation by the Committee, we will include an interview process as part of the admission process. Please find our full response on this issue in Section 1, item 4 above.	Choose level of compliance:

5. Learning resources and student support
(ESG 1.6)

Areas of improvement and recommendations **by EEC**	Actions Taken by the Institution	For Official Use ONLY
1. Research space is insufficient for about 40 (about 20X2) MSC students (see above).	As from the first accreditation of the program in Fall 2019 onwards, the average number of students is 14 per academic year. With this enrollment rate, current lab space and infrastructure are sufficient for the successful implementation of all teaching and research activities of the program. Furthermore, upon completion of the new building, the four new labs and acquisition of new equipment by the end of 2023 (please see our response to Section 1, item 2 above), we are confident that the available space and infrastructure will be sufficient to cover the needs of more than 20 students per academic year.	Choose level of compliance:

6. Additional for doctoral programmes

(ALL ESG)

N/A

Areas of improvement and recommendations **by EEC**	Actions Taken by the Institution	For Official Use ONLY
Not relevant.	Click or tap here to enter text.	Choose level of compliance:

7. Eligibility (Joint programme)
(ALL ESG)

N/A

Areas of improvement and recommendations **by EEC**	Actions Taken by the Institution	For Official Use ONLY
Not relevant.	Click or tap here to enter text.	Choose level of compliance:

B. Conclusions and final remarks

Conclusions and final remarks **by EEC**	Actions Taken by the Institution	For Official Use ONLY
1. We recommend accepting a maximum of 10 students per year in the first two years	The program is being offered since 2019. Please see our response in Section 5 as to what has applied since then and its initial accreditation. With this enrollment rate, current lab space and infrastructure were sufficient for the successful implementation of all teaching and research activities of the program. Furthermore, upon completion of the new building, the four new labs and acquisition of new equipment by the end of 2023 (please see our response to Section 1, item 2 above), we are confident that the available space and infrastructure will be sufficient to cover the needs of more than 20 students per academic year.	Choose level of compliance:
b. Additional lab space should be ready by the end of 2023 when the number of students will reach a steady state of about 40 (20X2).	Upon completion of the new building, the four new labs and acquisition of new equipment by the end of 2023 (please see our response to Section 1, item 2 above), we are confident that the available space and infrastructure will be sufficient to cover the needs of more than 20 students per academic year. Please also see our response in Section 1, item 2 above.	Choose level of compliance:
c. Increase the faculty and further enhance collaborations with other faculties within and outside the university	Please see our responses in Section 1, item 1 and Section 3 above.	Choose level of compliance:

d. Integrate the student feedback in the development of the M.Sc. program	Please see our response in Section 1, item 5, above.	Choose level of compliance:

We sincerely thank the EEC for the positive feedback and its constructive recommendations. We found the EEC's candid discussions a constructive learning process as we were provided with critical input on moving forward effectively.

We have thoroughly reviewed the findings, strengths, and areas of improvement indicated by the EEC following its review and addressed all comments in full. By embracing the EEC's comments and suggestions, we are convinced that our program will effectively ensure its students' learning outcomes.

In closing, we are grateful to the EEC for their suggestions and insightful comments with regard to the M.Sc. in Cancer Biology program of study.

C. Higher Education Institution academic representatives

Name	*Position*	*Signature*
Prof. Panagiotis Papageorgis	Dean, School of Sciences	Panagiotis Papageorgis Panagiotis Papageorgis (Aug 1, 2023 11:36 GMT+3)
Assoc. Prof Anastasios Theodorou	Chairperson, Department of Life Sciences	Anastasios A. Theodorou Anastasios A. Theodorou (Aug 1, 2023 11:39 GMT+3)
Assoc. Prof Maria-Ioanna Christodoulou	Program Coordinator	Maria-Ioanna Christodoulou Maria-Ioanna Christodoulou (Aug 1, 2023 12:01 GMT+3)

Date: 1/8/2023

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Appendix I

INTERNAL REGULATION ON

FRAMEWORK OF THE SURVEY "STUDENT FEEDBACK ON THEIR LEARNING EXPERIENCE"

91st Senate Decision: 21 July 2022
93rd Senate Decision: 14 December 2022

Rationale

Evaluation of learning and teaching processes and practices is essential to enable the European University Cyprus (EUC) to continuously improve student learning outcomes and learning experience. EUC has developed a questionnaire titled *Student Feedback on their Learning Experience (SFLE)* as a source of information for receiving feedback by students on their learning experiences, per course and per academic semester. The findings from the analysis of the questionnaire survey are utilized in various ways, including:

a. the Program Evaluation Review (PER) process of programs of study, which aims at programs' ongoing monitoring and evaluation. The SFLE findings complement other data sources gathered during the PER process, such as reflective practice, expert/peer review, student assessment results, teaching portfolios, etc. which all provide valuable information in reviewing EUC programs of study evaluation (for more about the PER procedure, please see PER Internal Regulation).

b. in the process of changes and development of EUC programs of study, the *SFLE* provides a key component in academic staff professional development and appraisal leading to enhanced quality of learning and teaching at EUC. More specifically the results from the individual reports are discussed between the Instructors, the Program Coordinator and if needed with the Chairperson of the Department and the Dean of the School in a peer review fashion and if needed support and guidance is provided.

c. to guide Faculty and Special Teaching Personnel support through the EUC Faculty Professional Development program. More specifically selected results from these evaluations are taken into consideration when new seminars and training sessions are scheduled by the Office of the Vice Rector of Academic Affairs.

d. in summative reports and the renewal of collaboration of part-time academic staff.

Scope

This procedure applies to all EUC students attending undergraduate and master programs of study (both Conventional and E-Learning). It does not apply to: Ph.D. programs of study, courses with less than five (5) students, and internship and fully clinical/practical courses without taught/theoretical sessions. The procedure provides the basis for the collection and analysis of *Student Feedback on Learning Experience (SFLE)* and reporting these results to Faculty and Special Teaching Personnel members, Chairpersons, Deans, the Rectorate Office, and relevant University bodies to enable improvement and amendment of teaching practices.

Strategic View

The University's strategic teaching goals, as described in the University Strategic Plan, are supported by achievements in academic programs, course design and teaching practices. The *SFLE* process is designed to offer students' perspective on the way courses are being taught which is an essential element of Quality Assurance processes. As with most university worldwide, students are considered as key stakeholders at EUC.

Quality View

The *SFLE* provides valid, reliable information/data on the impact and resource effectiveness of learning and teaching, as well as on instructor and academic and administration support related issues, thus contributing on the continuous improvement of academic programs. In addition, the process's rationale is to provide information/data about learning and teaching experience objectives. The survey questions address not only the course and the instructor, but also the unique features of particular forms of learning and teaching such as: digital enhanced learning, clinical/lab teaching parts of courses, the use of technology, as well the interaction and communication with all learning and administrative support services provided by the University.

Management of Information/Data

The design, conduct and reporting of *SFLE* respect the rights, privacy and dignity of those contributing to and assessed by the evaluation. *SFLE* information is available to the Faculty and the Special Teaching Personnel member and to the relevant Program Coordinator, Chairperson of the Department and the Dean of the School and is used internally through all processes presented in the section Rationale above.

Student responses are anonymous and confidential.

Frequency

The *SFLE* takes place for limited period prior the final examination period in accordance of the semester's schedule.

Monitoring

The *SFLE* process is monitored by the Office of Vice Rector of Academic Affairs, which updates the Rectorate Committee, as well as the Committee on Internal Quality Assurance, to ensure it enhances the quality of learning experience at the University.

Responsibilities

Vice Rector of Academic Affairs

- The Vice Rector of Academic Affairs is responsible for the management of *SFLE.*
- Initiates *SFLE* per academic semester.
- Evaluates and monitors the *SFLE* procedure.
- In collaboration with the Committee on Internal Quality Assurance is responsible for the appropriate design, delivery, evaluation and improvement of the *SFLE* methodology.

Deans of Schools – as per Annex 13 of University Charter

- Determine the appropriate learning and teaching evaluation program for the academic staff and programs.

Chairpersons of Departments - as per Annex 13 of University Charter

- Communicate the outcomes of the *SFLE* to all instructors discuss critical issues.

Program coordinators - as per Annex 13 of University Charter

- Each program coordinator must incorporate and present the *SFLE* results in its PER report.
- In addition, each Department and School Council may also decide to assign access to the *SFLE* information or information on specific *SFLE* sections on all their programs of study or specific ones after discussion and approval of the two bodies.

Instructors - *as per Annex 13 and Appendix F of* University Charter

- All instructors are responsible to engage students in filling in the *SFLE*.
- Faculty and Special Teaching Personnel include the *SFLE* findings in their promotion applications, as well as in their Bi-Annual Performance Appraisal and personal development plans, as per University Charter guidelines.

Students

- Are responsible for providing constructive feedback on their learning and teaching experience by filling in the *SFLE.*

European University Cyprus

SCHOOL:	**SCIENCES**
DEPARTMENT:	**LIFE SCIENCES**

COURSE OUTLINE

Course Information		
Course Title: Cancer Diagnostics and Therapeutics		
Mode of Delivery: Conventional		
Course Code & Section: **MCB630A**	**Semester: SPRING 2023**	
Day and Time: **Wednesday 18:10 –21:00**	**Lecture Room No.:** **203**	**Lab Room No.:**
Prerequisite(s): None **Co-requisite(s): None**	**ECTS: 10**	
Level: Master (2nd Cycle)	**Lecture Hours per week: 3**	**Laboratory Hours per week:**
Type of Course: Compulsory		
Instructor Information		
Name: Dr Apostolos Zaravinos, Dr Christiana Neophytou, Dr Irene Polycarpou, Dr Matina Kourti		
Office Room No.: **AZ: 124** **CN: 210** **IP: 124** **MK: 118**	**Office Telephone Number:** **AZ: +357-22559577** **CN: +357- 22713218** **IP: +357- 22559573** **MK: +357-22712378**	
E-Mail: A.Zaravinos@euc.ac.cy, c.neophytou@euc.ac.cy i.polycarpou@euc.ac.cy M.Kourti@euc.ac.cy	**Office Hours:** **AZ:** *Monday, 16:00-17:50 (online)* *Tuesday, 09:15-11:05 & 12:30-13:20* *Friday, 13:30-14:20 & 17:00-17:50* *Students may book an appointment here* **CN:** *Wednesday, 16:00-17:50 (online)* *Thursday, 10:15-13:20* *Friday, 11:30-12:20* *Students may book an appointment here* **IP:**	
Website Link: https://euc.ac.cy/en/faculty-profiles/Apostolos-Zaravinos/		

https://euc.ac.cy/en/faculty-profiles/christiana-neophytou/ https://euc.ac.cy/en/faculty-profiles/irene-polycarpou/ https://euc.ac.cy/en/faculty-profiles/malamati-kourti/	*Tuesday, 10:15-12:20* *Wednesday, 15:00-17:50* *Thursday, 10:15-11:05* *Students may book an appointment here* **MK:** *Monday 9:15-10:05 and 10:15-11:05 (online)* *Tuesday 13:30-14:20 and 15:00-15:50* *Thursday 13:30-14:20 and 15:00-15:50* *Students may book an appointment here*

School Information	
School Office Telephone Number: 22713227	**School Office Email:** t.georgiou@euc.ac.cy

Website/Links
University Website: www.euc.ac.cy **Students' Portal:** https://myeuclogin.euc.ac.cy through which you can have access to your University Email Account, as well as the Blackboard Learn Ultra webpage.
EUC App: https://mobile.euc.ac.cy/

COURSE DESCRIPTION:

The main objective of the Cancer Diagnostics and Therapeutics course is to introduce the latest advances in cancer diagnostic methodologies as well as provide a comprehensive overview of the different types of cancer treatment currently available in the clinic, emphasizing the connection between basic and translational knowledge in tumor biology.

LEARNING OUTCOMES:

Upon completion of the course, students will be able to:

- Describe and determine the appropriate the diagnostic methods in different cancer types
- Recognize the advantages of using non-invasive or minimally invasive approaches in cancer diagnostics
- Appraise the usefulness of different molecular markers for cancer diagnosis and prognosis
- Describe different ionizing and non-ionizing imaging methodologies for cancer diagnosis
- Describe the different types of cancer treatment strategies
- Differentiate and compare the use of chemotherapy, nanotherapy and current targeted cancer therapies
- Discuss the role of the tumor microenvironment in the efficacy of cancer treatment
- Develop hypotheses to address the development of resistance to selected therapies

SUGGESTED TEXTBOOK(S):

- Anticancer Therapeutics, Latest Edition, by S. Missalidis, Wiley
- Breast Cancer: Translational Therapeutic Strategies, Latest Edition, by Gary H. Lyman, Harold J. Burstein, CRC Press
- Cancer Biomarkers: Minimal and Noninvasive Early Diagnosis and Prognosis, Latest Edition, by D. Barh, A. Carpi, M. Verma, M. Gunduz, CRC Press
- Cancer Nanotechnology: Principles and Applications in Radiation Oncology (Imaging in Medical Diagnosis and Therapy), Latest Edition, by S.H. Cho and S. Krishnan, CRC Press

RECOMMENDED/ADDITIONAL READINGS:

Selected scientific articles in pdf format that will be provided in advance by the lecturer

'Copyright' is the legal term used to describe the rights given to an author to protect his/her original work. The Law protects this work from being copied without permission and upholds the author's right to derive an income from his/her work.

It is an offence to photocopy *more than 10% or one chapter* (whichever is the greater) of the course textbook or any other textbook, which is not less than 10 pages long. The photocopy must be for *personal* use only.

Possession of substantial photocopied material (such as a whole textbook) on the campus of the European University Cyprus can result in disciplinary measures by the institution and by the Law enforcement authorities.

WEEKLY BREAKDOWN (Excluding Christmas and Easter Holidays):	
WEEK	**TOPIC**
1 15.02.23	Personalized Medicine/Novel Technologies – A. Zaravinos
2 22.02.23	Molecular Diagnostic and Prognostic Markers (part-I) – C. Neophytou
3 01.03.23	Molecular Diagnostic and Prognostic Markers (part-II) – A. Zaravinos
4 08.03.23	Ionizing radiation imaging methodologies for cancer (radiology) – I. Polycarpou
5 15.03.23	Ionizing radiation imaging methodologies for cancer (nuclear medicine) – I. Polycarpou
6 22.03.23	Non- ionizing radiation imaging methodologies for cancer – I. Polycarpou
7 29.03.23	**MIDTERM exam** -A. Zaravinos
8 05.04.23	Histology, Staging and Grading – A. Zaravinos
9 26.04.23	Chemotherapy types of cancer – A. Zaravinos
10 03.05.23	Chemotherapy: mechanisms/resistance - C. Neophytou
11 10.05.23	Pharmacokinetics/ Pharmacokinetic interactions – M. Kourti
12 17.05.23	Radiation Oncology (therapy) – C.Neophytou
13 24.05.23	Student Assignment Presentations – C.Neophytou
14	**FINAL EXAMS** -A. Zaravinos

GRADE DISTRIBUTION:	
DESCRIPTION:	**PERCENTAGE**
1. Midterm examination	30%
2. Final examination	40%
3. Assignment	20%
4. Participation	10%

TOTAL	100%

ADDITIONAL NOTES:
1. The basic textbook(s) and/or the recommended/additional readings listed in this course outline are the responsibility of the student to purchase, as per instructed by the Course Instructor.
2. The final examination for this course will be taking place between **29/05-12/06/2023.** The final date and time will be provided at a later stage.
3. For a student who fails (one time) a course, see the 'Resit of the Final Examination' policy of European University Cyprus (EUC) at the EUC website here https://www.euc.ac.cy/en/current-students/academic-policies--regulations
4. Students with learning difficulties and disabilities are strongly encouraged to contact before the end of the third week of each academic semester the Committee for Students with Special Educational Needs (C.S.S.E.N./E.Φ.E.E.A.) at [e] efeea@euc.ac.cy and [t]+357 22559509], in order to ensure that the appropriate academic accommodations and support will be provided to them throughout the semester, as well as during the final examination.
5. Please remember to evaluate this course electronically, always in alignment to the guidelines that will be provided. The evaluation period will be taking place **15-26/05/2023.**

6.

Attendance policy

Policy of class attendance and assignment submission

Graduate programs

The Department of Life Sciences of the European University Cyprus has determined the following policy with regard to attendance and assignment submission in order to ensure that maximum teaching efficiency is achieved and actual learning is accomplished.

Absences limit:

1. **Theory:** Up to 4 absences or up to 33.3% of teaching time.
2. **Laboratories:** Up to 2 absences or up to 16.7% of teaching time.
3. **Practice (clinical or other):** The defined by Cyprus legislation and respective study guides number of hours.

Attendance:

In order to facilitate the smooth running of lectures during the semester, students should attend classes on time, otherwise they will not be accepted until the next teaching period (after the break) while their absence will be recorded accordingly.

The absences limit will be reached when the maximum allowed number of absences has been recorded. More specifically, three (3) absences could correspond to either 3 absences on 3 different dates that a three-hour course is being taught or to absence from a total number of 9 teaching hours on different dates (including being late or leaving early).

Regarding the clinical or other practice, the respective study guides provide appropriate guidelines. In the unlikely event that a student does not attend his/her practice facility but his/her absence is properly justified and documented, he/she will be required to extend the practice period by the number of hours/days that were lost. Even during practice, students are expected to attend their placement facility on time and leave at the designated time. Failure to do so will result in recording of absence, as described above.

Class participation:

Class participation and the respective grading, does not only correspond to the physical presence of students in class but rather to their active participation during the lecture. Asking and answering questions, making arguments, defending a view or articulating a thought and participating in the dialogue generated in class, are a few examples of what is considered as active participation. The instructor of each course is responsible to determine and evaluate each student's participation.

Absence justification:

In order to evaluate the justification provided for a student's absence in a lecture or exam, the following criteria must be met:

1. The instructor should have been informed of the prospective absence prior to it or 48h after it, the latest.
2. Proper documentation should be provided to the course instructor by e-mail along with a written explanation of the reasons that prevented him/her from attending class/exam. This documentation has to be received within one (1) week from the date when the student did not attend the class (the latest).

It goes without saying that failure to conform to one of the two criteria will result in denial to reconsider justification of the respective absence. Moreover, it should also be noted that presenting the documentation as described above does not by itself mean that the absence is justified as this has to be considered by the Departmental Council whose decisions will be made clear to both the instructor and student.

The following are considered as possible reasons for justification of an absence <u>following proper documentation</u>:

1. Sickness /injury
2. Military service
3. Court service
4. Participation in an international sports event/race
5. Other significant reasons (to be judged by the Departmental Council)

Absence justification should, by no means, result in "loss" of more than **50%** of theory or **30%** of laboratory classes (regardless of the underlying reason).

Hybrid courses:

Attendance policy in hybrid courses (with regard to the distance learning part of the course) is determined by the instructor and is monitored through the respective electronic platform.

Submission of assignments/projects:

In order to ensure that no discrimination takes place among students, deadlines are strictly followed. Thus, late submission of an assignment/project will result in either its rejection (no grade given for it), or in grade reduction, as the instructor deems necessary.

GRADING SYSTEM:

UNDERGRADUATE					GRADUATE			
Letter Grade	**Grade Meaning**	**Grade Points**	**Percentage Grade**		**Letter Grade**	**Grade Meaning**	**Grade Points**	**Percentage Grade**
A	Excellent	4.0	90 and above		A	Excellent	4.0	90 and above
B+	Very Good	3.5	85-89		B+	Very Good	3.5	85-89
B	Good	3.0	80-84		B	Good	3.0	80-84
C+	Above Average	2.5	75-79		C+	Above Average	2.5	75-79
C	Average	2.0	70-74		C	Average	2.0	70-74
D+	Below Average	1.5	65-69					
D	Poor	1.0	60-64					
F	Failure	0			F	Failure	0	
I	Incomplete	0			I	Incomplete	0	
W	Withdrawal	0			W	Withdrawal	0	
P	Pass	0			P	Pass	0	
AU	Audit	0			AU	Audit	0	

(a) The grade "I" is awarded to a student who has maintained satisfactory performance in a course but was unable to complete a major portion of course work (e.g. assignment/paper or final exam) and the reasons given are acceptable to the instructor. It is the responsibility of the student to bring pertinent information to the instructor to justify the reasons for the missing work and to reach an agreement on the means by which the remaining course requirements will be satisfied. A student is responsible, after consulting with the instructor, for fulfilling the remaining course requirements within the first four weeks of the following semester for which an "I was awarded. In very special cases, the instructor may extend the existing incomplete grade to the next semester. Failure of the student to complete work within this specific time-limit will result in an "F" which will be recorded as the final grade.
(b) The grade "W" indicates withdrawal from the course before the specified time as explained in the withdrawal policy.
(c) Grades of "P" will not be computed into a student's cumulative grade point average but will count towards graduation credits.
(d) Grades of "F" will be computed into the student's cumulative grade point average.
(e) Students enrolling for an Audit must designate their intent to enrol on an Audit basis at the time of registration. Students registering for a course on an Audit basis receive no credit.

Final Exams Appeals Procedure:

In the case where a student believes that the grade received in the Final Exam is different from what was expected, he/she must exhaust all possibilities of resolving the problem with the pertinent instructor first. If this does not lead to a resolution, the student may appeal

against the Final Exam grade by filing a petition with the Office of the Registrar (Petition Fee €34).

The Registrar will forward a copy of the petition to the pertinent Chairperson of Department, who will first ascertain that no error was made by the instructor, and if so will assign an anonymous re-evaluation of the final examination/project to another instructor. In the case of major discrepancy between the instructor's evaluation and the re-evaluation that will require change of grade, the average of the two evaluations will be assigned as the final grade to the final examination/project. Changes of grades resulting from an appeal require the endorsement of the Dean of School.

For a petition to be reviewed, a student must appeal within four (4) weeks from the date the results are announced.

UNIVERSITY EMAILS:

The University has taken the decision that all students, attending any University program of study, make use of the EUC email addresses when corresponding with EUC academic and administration staff, as well as all scientific collaborators and special scientists. It should be noted that the EUC staff will not be replying to any non-official EUC University email addresses.

UNIVERSITY EMAIL SUPPORT:

Kindly contact support@euc.ac.cy in case you do not know your University email address or face any difficulty in using it.

LIBRARY:

The library's **OPAC** (Online Access Public Catalogue) is located at https://onlinelibrary.euc.ac.cy/ and can be freely accessed. Current students, faculty and personnel can make reservations of books and other material.

For accessing electronic resources and databases off-campus, students can use **OpenAthens http://openathens.euc.ac.cy/**. You can access OpenAthens from the library webpage https://library.euc.ac.cy/ or alternatively you will see the OpenAthens logo when you first login through **My EUC Login** located on the upper right side of EUC's webpage. **It is strongly recommended to begin your research by signing first to OpenAthens and then visiting the databases of your interest rather than the other way around**. For a more detailed description of all databases visit **EUC E-Journals and Databases** https://library.euc.ac.cy/euc-e-journals-and-databases/.

Plemochoe is EUC's institutional repository established for the sole purpose of gathering, preserving and distributing original research material produced by the EUC faculty, students and researchers. Plemochoe aims to validate the intellectual life of the University by promoting scientific research to the local and international communities https://repo.euc.ac.cy/.

Visit the **Library Guides** https://library.euc.ac.cy/library-guides/ page to download and print manuals, guides, flyers on a number of services, like Turnitin, Mendeley, Refworks, EBSCO EDS, DynaMed, etc.

IMPORTANT UNIVERSITY INTERNAL REGULATIONS:

INTERNAL REGULATIONS ON "ACADEMIC ETHICS AND STUDENTS' DISCIPLINE"
https://euc.ac.cy/en/academics/academic-regulations/

INTERNAL REGULATIONS ON "PROCEDURES FOR THE MANAGEMENT OF COMPLAINTS/GRIEVANCES"
Procedures for the Management of Complaints Grievances

INTERNAL REGULATIONS ON "HARASSMENT AND BULLYING"
Harassment and Bullying Policy

INTERNAL REGULATIONS ON "SEXUAL HARASSMENT"
Sexual Harassment Policy

European University Cyprus

Appendix III

Course title	**Cancer Diagnostics and Therapeutics**				
Course code	**MCB630**				
Course type	**Compulsory**				
Level	Master's (2nd cycle)				
Year / Semester	1st Year / 2nd Semester				
Teacher's name	Dr. Irene Polycarpou, Dr. Marilena Theodorou, Dr. Christiana Neophytou				
ECTS	10	**Lectures / week**	3 Hours/14 weeks	**Laboratories / week**	None
Course purpose and objectives	The main objective of the Cancer Diagnostics and Therapeutics course is to introduce the latest advances in cancer diagnostic methodologies as well as provide a comprehensive overview of the different types of cancer treatment currently available in the clinic, emphasizing the connection between basic and translational knowledge in tumor biology.				
Learning outcomes	Upon completion of the course, students will be able to: • Describe and determine the appropriate the diagnostic methods in different cancer types • Recognize the advantages of using non-invasive or minimally invasive approaches in cancer diagnostics • Appraise the usefulness of different molecular markers for cancer diagnosis and prognosis • Describe different ionizing and non-ionizing imaging methodologies for cancer diagnosis • Describe the objectives and functions of Artificial Intelligence (AI) in medical imaging for cancer management • Understand of the challenges behind AI techniques for cancer management • Describe application of AI for different medical tasks and scenarios • Describe the different types of cancer treatment strategies • Differentiate and compare the use of chemotherapy, nanotherapy and current targeted cancer therapies • Discuss the role of the tumor microenvironment in the efficacy of cancer treatment • Develop hypotheses to address the development of resistance to selected therapies				
Prerequisites	None		**Required**	None	
Course content	**Description:** • Diagnostic methodologies using biopsies from biological tissues or fluids • Molecular diagnostic and prognostic markers for different cancer types				

	• Ionizing radiation imaging methodologies for cancer diagnosis • Practical training with PET/CT images in order to extract quantitative information and compare it with biopsy results for non-Hodgkin lymphoma patients (use of a freely available software installed in the Radiology lab). • Non-ionizing radiation imaging methodologies for cancer diagnosis • Artificial Intelligence (AI) in medical imaging for cancer management • AI techniques in x-rays, CT, MRI, PET/CT imaging for cancer management • Histological classification, grading and staging of tumors • Chemotherapy: Different types and mechanisms of action in frequently diagnosed tumors, such as breast, colon, lung, prostate, pancreas, melanoma, leukemias. • Nanotherapy: Latest technologies and advantages over traditional chemotherapy. • Applications of radiation oncology in cancer treatment • Personalized medicine: cancer treatment using targeted therapies • Anti-hormone therapies • Mechanisms of drug resistance • Novel technologies for drug development
Teaching methodology	Face-to-face
Bibliography	Anticancer Therapeutics, Latest Edition, by S. Missalidis, Wiley Breast Cancer: Translational Therapeutic Strategies, Latest Edition, by Gary H. Lyman, Harold J. Burstein, CRC Press Cancer Biomarkers: Minimal and Noninvasive Early Diagnosis and Prognosis, Latest Edition, by D. Barh, A. Carpi, M. Verma, M. Gunduz, CRC Press Cancer Nanotechnology: Principles and Applications in Radiation Oncology (Imaging in Medical Diagnosis and Therapy), Latest Edition, by S.H. Cho and S. Krishnan, CRC Press Selected scientific articles in pdf format that will be provided in advance by the lecturer
Assessment	Mid-Term Examination 30% Final Examination 40% Oral presentations/Assignments 20% Class participation and Attendance 10% **Total 100%**
Language	English

Course title	**Bioinformatics**				
Course code	**MCB645**				
Course type	**Elective**				
Level	Master's (2nd cycle)				
Year / Semester	1st Year / 2nd Semester				
Teacher's name	Prof. Apostolos Zaravinos, Dr. Marianna Christodoulou				
ECTS	10	**Lectures / week**	2 Hours/14 weeks	**Laboratories / week**	1 Hour/14 weeks
Course purpose and objectives	The main objective of the Bioinformatics course is for students to learn various bioinformatics tools and analysis methods and be able to apply them in the analysis of various cancer genomes. Upon completion of the course, students should be able to work with the vast amounts of genomic, transcriptomic and/or proteomic data and tools and apply this knowledge to their research or professional career.				
Learning outcomes	Upon completion of the course, students will be able to: • Apply computational tools to biological data with a focus on cancer genomes • Collect and interpret biological and cancer-related data from public databases • Apply statistical and non-statistical tools for multiple sequence alignment and alignment of reads from high-throughput sequencing technologies • Apply computational methods to analyze high-throughput DNA/RNA sequencing data • Utilize contemporary bioinformatics tools to address biological questions related to cancer and metastasis • Install, Code and Use R Programming Language in R Studio IDE to perform basic tasks on Vectors, Matrices and Data frames. • Build basic programs using fundamental programming constructs like variables, conditional logic, looping, and functions in Pythom programing.				
Prerequisites	None			**Required**	None
Course content	**Description:** • Mining of Cancer-related Data from Online Repositories (GEO, SRA, TCGA, ICGC, etc.) • Introduction to omics • High-throughput sequencing technologies - basics of NGS chemistries • Introduction to the Galaxy platform • Hands-on practical courses on the analysis of NGS data (e.g., From peaks to genes, finding SNPs on a human chromosome, quality control of NGS data, mapping, etc.) • Gene expression analysis using RNA-sequencing (RNA-seq) • Variant analysis & Identification of somatic and germline variants • Chromatin immunoprecipitation sequencing (ChIP-seq):				

	protein-DNA interactions • Epigenetic data analysis: histone modifications, chromatin accessibility, DNA methylation • Enrichment analysis • Introduction to R programming: how to install R, variables in R, data types, vectors, operators, lists, matrices, arrays, factors and data frames, inbuilt functions, flow control statements • Introduction to Python and Computer Programming, Data Types, Variables, Basic Operators, Boolean Values, Conditional Execution, Loops, Lists
Teaching methodology	Face-to-face
Bibliography	Bioinformatics: Sequence and Genome Analysis, David Mount, Latest Edition, ISBN 978-087969712-9 Bioinformatics and functional genomics, Jonathan Pevsner, Latest Edition, ISBN: 978-1-118-58178-0 Structural Bioinformatics. P. E. Bourne, H. Weissig, Latest Edition, Wiley- Liss ISBN 0471 20199 5 Selected scientific articles in pdf format that will be provided in advance by the lecturer
Assessment	Mid-Term Examination 30% Final Examination 40% Oral presentations/Assignments 20% Class participation and Attendance 10% **Total 100%**
Language	English

European University Cyprus

Appendix IV

Faculty Professional Development Program 2022-23

A/A		HOURS	DATE ATTENDED
1.	Orientation to European University Cyprus (EUC)	2 hours	28/9/2022
2.	Familiarization with EUC Academic Structures, Processes and Procedures: How to prepare for the Semester	3 hours	28/9/2022
3.	Familiarization with Blackboard Learn Ultra and the Department of Information and Operations Support Structures	2 hours	29/9/2022
4.	Orientation on Research and Mobility at EUC	2 hours	18/10/2022
5.	Artificial Intelligence (AI) in Higher Education	2 hour	20/2/2023
6.	Navigating the Opportunities and Threats of AI Tools in Education	1 hour	14/3/2023
7.	Accessing Blackboard Learn Dashboard	1 hour	21/3/2023
8.	Poll Everywhere	2 hours	24/3/2023
9.	Advance HE "New to Teaching Programme"	25 hours	4th,18th, 25th/5/2023 & 1st, 8th, 15th/6/2023
	TOTAL HOURS ATTENDED	**40 Hours**	