<table>
<tr><td>Course Title</td><td colspan="3">Research Project</td></tr>
<tr><td>Course Code</td><td colspan="3">MD-402</td></tr>
<tr><td>Course Type</td><td colspan="3">Required</td></tr>
<tr><td>Level</td><td colspan="3">Undergraduate</td></tr>
<tr><td>Year / Semester</td><td colspan="3">Year 4 / Semester 7 & 8 (Fall and Spring)</td></tr>
<tr><td>Teacher's Name</td><td colspan="3">Course Lead:
Prof Constantina Constantinou</td></tr>
<tr><td rowspan="2">ECTS</td><td rowspan="2">5</td><td>Large Group Learning</td><td>Tutorials</td></tr>
<tr><td>6</td><td>6</td></tr>
<tr><td>Course Purpose and Objectives</td><td colspan="3">As progress in evidence-based medicine is driven by research, it is imperative that research is integrated in the curriculum of all medical schools. Through their engagement in research projects, students develop the ability to analyse and critically appraise published research articles as well as to develop important research skills which will help them succeed in academia and clinical practice. Furthermore, an early exposure with research will help students decide whether they would like to progress to/ combine a career in academic research following the completion of their MD degree.

The Research Project course offers students the opportunity to either:

(a) Carry out a Narrative Literature Review. By carrying out a Narrative Literature Review, students study in depth a topic outside the core curriculum and develop critical thinking and self-directed learning skills. Students carry out a literature review and write a 4000-word self-directed Narrative Literature Review on specific disorders under the four main non-communicable disorders (Cardiovascular disease, cancers chronic respiratory diseases and diabetes). The students familiarise themselves with the process involved in carrying out a narrative literature review for journal publication and/or for developing research hypotheses that could develop into research proposals and research projects. Students are encouraged to embrace this opportunity and enrich their medical education through not only the development of a high-quality Narrative Literature Review that is a requirement of the current course but also through the pursuit of a publication in an academic journal.

or

(b) Carry out a Research Project and develop a Research Poster. By carrying out an original Research Project, students study a topic outside the core curriculum in depth and develop critical thinking and self-directed learning skills. Students carry out a project that involves data collection/ extraction (e.g. by using questionnaires, databases etc) and qualitative or quantitative analysis of results. The performance of lab-based projects may also be possible. The data collection/ extraction and analysis familiarise students with the process involved in carrying out an original research project. The outcome of the research project is the development of a scientific poster that meets the published assessment criteria of scientific conferences, written in plain English and accessible by a general professional audience including healthcare professionals, researchers and medical educationalists. Students are encouraged to</td></tr>
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	embrace this opportunity and enrich their medical education through the presentation of their poster in a scientific conference.
Learning Outcomes	**<u>Learning outcomes for all students:</u>** After completion of the course students should be able to: 1. Access, analyse and evaluate published research papers. 2. Develop and apply analytical and critical appraisal skills. 3. Develop self-directed learning skills. 4. Study, in depth, a topic of particular interest outside the core curriculum. 5. Describe the ethical issues relevant to writing a research paper including integrity, copyright and citation. 6. Demonstrate time management skills. 7. Consider potential career paths. **<u>For students in Pathway A carrying out a Narrative Literature Review</u>:** After completion of the course students should be able to: 1. Describe the aims and structure of a Narrative Literature Review. 2. Discuss and critically appraise the literature. 3. Write a Narrative Literature Review at the level of a publication in an academic journal. 4. Describe how a Narrative Literature Review can support the development of research hypotheses and research proposals. **<u>For students in Pathway B carrying out a Research Project:</u>** After completion of the course students should be able to: 1. Implement an original Research Project (typically clinical research, audit or service evaluation) incorporating collection of quantitative or qualitative data 2. Collect data and analyse using suitable methods including simple descriptive statistics and graphs; 3. Discuss and critically appraise the study results in relation to the literature, recognising any limitations of the collected data, and drawn conclusions meeting the study aims 4. Design and produce a Research Poster suitable for display at a scientific conference that meets the published assessment criteria, written in plain English and accessible by a general professional audience including healthcare professionals, researchers and medical educationalists. 5. Describe the ethical issues relevant to writing a research paper including integrity, copyright and citation. *Digital Healthcare* 1. Assess the role of digital tools and AI in enhancing literature search strategies and systematic reviews.

	2. Critically appraise AI-driven tools for identifying relevant studies and extracting data. 3. Evaluate the accuracy and biases of AI algorithms in screening and selecting scientific papers. 4. Discuss ethical considerations in the use of AI for literature appraisal, including transparency, reproducibility, and authorship credit		
Prerequisites	None	Required	None
Course Content	• Introduction to the course. • The structure of the Narrative Literature Review. • Development of a Research Strategy • Carrying out a Literature Review. • Critical appraisal of the literature. • Writing a Narrative Literature Review. • Carrying out an Original Research Project. • Constructing a scientific poster. • Presenting a scientific poster.		
Teaching Methodology	Lectures, tutorials, directed-self learning.		
Bibliography	**PATHWAY A:** **Background reading on non-communicable diseases** 1. Noncommunicable diseases Factsheet. World Health Organisation. January 2015. 2. World Health Organization. Global Health Observatory (GHO): NCD mortality and morbidity. Available from: **Importance and guidelines for writing Narrative Review Articles (available on Moodle)** 3. Ferrari, R. (2015) 'Writing narrative style literature reviews', *Medical Writing,* vol. 24, pp. 231-234. 4. Mayer, P. (2009) 'Guidelines for writing a review article.' 5. Pautasso, M. (2013) 'Ten simple rules for writing a literature review', *PLOS Computational Biology,* 9(7), pp. e100319. **Sample Narrative Review articles (available on Moodle)** 6. Ford, A.C., Lacy, B.E. and Talley, N.J. (2017) 'Irritable bowel syndrome', *The New England Journal of Medicine,* 376(26), pp. 2566-2578. 7. Shah, R., Rosso, K. and Nathanson, S. D. (2014) 'Pathogenesis, prevention, diagnosis and treatment of breast cancer', *World Journal of Clinical Oncology,* 5(3) pp. 283-298. 8. De Benedictis, D. and Bush, A. (2017) 'Asthma in adolescence: is there any news?*',* *Pediatric Pulmonology,* 52, pp. 129-138. 9. Giordano, S. H. (2005) 'A review of the diagnosis and management of male breast cancer', *The Oncologist,* 10, pp. 471-479.		

	10. Randolph, C. (2013). 'Pediatric exercise-induced bronchoconstriction: contemporary developments in epidemiology, pathogenesis, presentation, diagnosis, and therapy', *Curr Allergy Asthma Rep*, 13, pp. 662-71. 11. Fan, L., Strasser-Weippl, K., Li, J., St Louis, J., Finkelstein, D., Yu, K., Chen, W., Shao, Z. and Goss, P. (2014). 'Breast Cancer in China', *The Lancet,* 15, pp. e279-e289. 12. Lin, Q-J., Yang, F., Jin, C., and Fu D-L. (2015) 'Current status and progress of pancreatic cancer in China', *World Journal of Gastroenterology,* 21(26) pp. 7988-8003. 13. Gallardo-Rincón D, Espinosa-Romero R, Muñoz WR, Mendoza-Martínez JR, del Villar-Álvarez S, Oñate-Ocaña L, Isla-Ortiz D, Márquez-Manríquez JP, Apodaca-Cruz A, Meneses-García A. (2016). 'Epidemiological overview, advances in diagnosis, prevention, treatment and management of epithelial ovarian cancer in Mexico.' *Salud Publica Mex* 58, pp. 302-308. **PATHWAY B:** **Articles on creating Research Posters** 1. Papanas N et al (2019). Creating a successful poster: 'Beauty is truth, truth beauty.' The International Journal of Lower Extremity Wounds 2019, Vol. 18(1) 6–9. 2. Bavdekar SB et al. (2017) Creating posters for effective scientific communication. Journal of The Association of Physicians of India 65, 82-88. 3. Gundogan, B., Koshy, K., Kurar L and Whitehurst, K. (2016) 'How to make an academic poster.' Ann Med Surg (London) 11, 69-71. 4. Research posters. A guide for creating, editing and presenting a successful research project. Accessible at 5. Miller JE. Preparing and presenting effective research posters. (2007) Health Research and Educational Trust 311-327, DOI: 10.1111/j.1475-6773.2006.00588.x Accessible at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955747/pdf/hesr0042-0311.pdf
Assessment	(a) For students in Pathway A carrying out a Narrative Review: A 4000-word Narrative Literature Review article (100%) or (b) For students in Pathway B carrying out a Research Project: A Research Poster (100%).
Language	English