

## Queen Mary Summer School

SUM501R: How to Beat Cancer

*Barts and The London School of Medicine and Dentistry*

### Course outline

Level: 5

Credits: 15 (Queen Mary credits)

Course Leader: Professor Richard Grose

Assessment: a combination of in-class/laboratory assessment and teamwork

### Course description:

This summer school course will be a collaborative academic offering by Queen Mary University London, Barts and The London Faculty of Medicine and Dentistry. The course will provide clear understanding of the different types of intrinsic and extrinsic factors that are related to the pathogenesis of cancer. The first section will review the principles of cancer initiation, promotion and progression. The second section will focus on the individual, controllable factors that can affect cancer risk: 1) smoking; 2) body mass index; 3) physical exercise; 4) alcohol consumption; 5) diet (pro-carcinogenic and anti-carcinogenic dietary substances); 6) UV radiation; and 7) vaccination against oncogenic viruses. The third section will focus on principles of cancer screening and the limitations of cancer screening test development. The benefits and harms of current cancer screening tests will be reviewed. The fourth section will review the essential roles of education, motivation, incentivization, and psychosocial environment (mental health, stress, socialization, education, financial status) on compliance with cancer-lowering behaviors of individuals and the larger impact of compliance on the public health, nationally and globally. It will showcase the value of multidisciplinary approaches in achieving the compliance needed to change health outcomes around the world.

The purpose of this module is to educate students preparing for careers in medicine, allied health professions and research about the controllable factors that have the greatest potential for lowering cancer risk in all patients, no matter what their genetic background. The module reviews the scientific evidence on non-heritable factors that modulate cancer risk in populations and individuals as well as their mechanisms of action. The module further explores the principles of human psychology that play roles in abetting or compromising patient compliance with the risk-lowering behaviors that are the focus of this module. Ultimately, through this new knowledge, the module aims to empower the students to reinforce cancer risk-lowering behavior.

### Learning outcomes:

On completion of the module, students can expect to have acquired:

- An understanding of the fundamental principles of carcinogenesis and fundamental knowledge in the area of human cancer prevention
- The ability to evaluate the data supporting different types of environmental factors that initiate and promote cancer
- The capability to analyse the role of human behaviour modulation in achieving the goals of cancer prevention
- Skills in summarizing and explaining scientific evidence in oral and written communication
- The competence to demonstrate skill in critical appraisal and analysis of the scientific literature and the ability to judge and interpret methods and results
- An understanding on how to integrate information of different types from different sources to construct a coherent presentation on a scientific topic
- An ability to adapt the principles of cancer prevention science into effective patient support for risk-lowering behaviour modification
- **The intelligence to engage and communicate effectively about cancer prevention and cancer risk modulation through behaviour change**

All reading material is provided digitally so you are not required to purchase any books.

**Assessments:**

The course assessments are not compulsory, however, if you wish to transfer credit for this course to your home university it is essential to complete the assignments.

**Group Presentation (30 min.), Lay summary and cartoon (300 words plus cartoon)**

**Preparation:**

Before you arrive on campus, it is advised that you familiarise yourself with the course content before it begins. You will be given instructions for accessing our Virtual Learning Environment (QMplus) before you arrive on campus.

**Teaching:**

The course is taught in two two-hour sessions per day (10.00 - 12.00 and 13.00 - 15.00), held Monday to Thursday each week.

**Indicative Additional Reading:**

- Vineis P, Wild CP. Global cancer patterns causes and prevention. *Lancet*. 2014 Feb 8;383(9916):549-57. doi: 10.1016/S0140-6736(13)62224-2. Epub 2013 Dec 16. PMID: 24351322.
- Di Sebastiano KM, Murthy G, Campbell KL, Desroches S, Murphy RA. Nutrition and Cancer Prevention: Why is the Evidence Lost in Translation?. *Adv Nutr*. 2019;10(3):410-418. doi:10.1093/advances/nmy089
- Danaei G, Vander Hoorn S, Lopez AD, Murray CJ, Ezzati M; Comparative Risk Assessment collaborating group (Cancers). Causes of cancer in the world: comparative risk assessment of nine behavioural and environmental risk factors. *Lancet*. 2005 Nov 19;366(9499):1784-93. doi: 10.1016/S0140-6736(05)67725-2. PMID: 16298215.
- Schottenfeld D, Beebe-Dimmer JL, Buffler PA, Omenn GS. Current perspective on the global and United States cancer burden attributable to lifestyle and environmental risk factors. *Annu Rev Public Health*. 2013;34:97-117. doi: 10.1146/annurevpublhealth-031912-114350. PMID: 23514316.
- Zanetti R, Sacchetto L, Coebergh JW, Rosso S. To accelerate cancer prevention in Europe: Challenges for cancer registries. *Eur J Cancer*. 2018 Nov;104:151-159. doi: 10.1016/j.ejca.2018.09.001. Epub 2018 Oct 20. PMID: 30352383.

Please note that the information provided may be subject to change.