

**NATIONAL TECHNICAL UNIVERSITY OF ATHENS  
SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING**

**POSTGRADUATE COURSE ON “MULTISCALE CANCER  
MODELLING AND *IN SILICO* MEDICINE” (705)**

**SUGGESTED PROJECT TITLES**

09 Dec. 2019.

1. A critical review of mechanistic multiscale (in silico) modelling of musculoskeletal disorders and their response to therapeutic interventions.
2. A critical review of mechanistic multiscale (in silico) modelling of heart diseases and their response to therapeutic interventions.
3. A critical review of mechanistic multiscale (in silico) modelling of surgical procedures and the response of the human body.
4. A critical review of mechanistic multiscale (in silico) modelling of the human immunodeficiency virus infection and the acquired immunodeficiency syndrome (HIV, AIDS) and their response to treatment.
5. A critical review of mechanistic multiscale (in silico) modelling of endocrinological diseases and their response to interventions.
6. A critical review of multiscale (in silico) modelling of renal diseases and their response to pertinent interventions.
7. A critical review of mechanistic multiscale (in silico) modelling of haematological diseases and their response to treatments.
8. A critical review of mechanistic multiscale (in silico) modelling of infectious diseases and their response to pertinent treatments.
9. A critical review of mechanistic multiscale (in silico) and artificial intelligence modelling in neuroscience.
10. A critical review of artificial intelligence and mechanistic multiscale (in silico) modelling of neurological diseases of the central nervous system and their response to pertinent interventions.

11. A critical review of artificial intelligence and mechanistic multiscale (in silico) modelling of psychiatric diseases of the central nervous system and their response to pertinent interventions.
12. A critical review of mechanistic multiscale (in silico) modelling of breast cancer and its response to therapeutic modalities.
13. A critical review of mechanistic multiscale (in silico) modelling of lung cancer and its response to pertinent therapeutic modalities.
14. A critical review of mechanistic multiscale (in silico) modelling of acute lymphocytic leukemia and its response to pertinent therapeutic modalities.
15. A critical review of mechanistic multiscale (in silico) modelling of glioblastoma and its response to pertinent therapeutic modalities.
16. A critical review of mechanistic multiscale (in silico) modelling of nephroblastoma and its response to pertinent therapeutic modalities.
17. Simulation modelling of avascular tumour growth (*development of computer code*) . An in silico exploration of the complex phenomenon regarding the effects of involved factors such as the duration of cell cycle.
18. A critical review of software engineering technologies and integrated systems development applied to in silico medicine.
19. A critical review of the legal and ethical aspects of in silico medicine and pertinent technological solutions .

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