Biology and Biochemistry of mental illness

Período: 06 - 10/02/2023 (período da manhã)
Carga horária: 60 horas, sendo 20h de atividades **online** e 40h de estudo e preparo das atividades
Créditos: 04
Inscrição: Para a inscrição é necessário enviar um e-mail para:

gabriel.lessa@unifesp.br

-Nome
-Número de Matrícula
-Nome do Orientador.

Professora responsável: Profª Drª Mirian Hayashi, Prof. Dr. Vincent Vialou e Prof. Dr. Fábio Cruz (Departamento de Farmacologia – UNIFESP/ EPM); Prof. Dr. Vitor Oliveira (Departamento de Biofísica – UNIFESP/ EPM)
Corresponsáveis: João V. Nani (doutorando), Thays C. Santiago (mestranda), Gabriel Lessa (mestrando)
Professores Convidados: Prof. Dr. Nicholas J. Bradshaw.

Required literature:
None, although students will be required to undertake independent reading in preparation for the seminars.

Course description:
Major mental illnesses are devastating conditions that represent one of the most significant causes of disability both globally and within Croatia. Despite the enormous personal and economic effects of these illnesses, progress in revealing their underlying biology has been slow, and is only now truly beginning to be understood.

In this course, students will be taught about biological aspects of major mental illnesses, with a particular focus on schizophrenia, bipolar disorder and major depressive disorder. Lectures will provide an overview of the aetiology and symptoms of these conditions (lecture 1), before focussing in turn on therapeutic options available for treatment (lectures 2 and 3), how we define the conditions (lecture 10), the biological causes of the conditions at a personal and cellular level (lectures 4, 5 and 8) and how these conditions can be studied in clinical and laboratory situations (lectures 6, 7 and 9).

Through this course, it is intended that students will develop an understanding of the devastating and widespread conditions, but also gain a broader understanding of the experimental methods by which researchers can investigate and eventually understand complicated biological conditions.

Learning outcomes:
After completion of the course, students should be able to:

1) Describe the symptoms and methods of diagnosis for a range of mental illnesses
2) List a range of treatment options for these conditions and discuss (where known) their means of action
3) Understand and describe environmental factors contributing to their onset

4) Understand the role of heritability in major mental illness, and genetic methods by which candidate genes for the conditions can be identified
5) As an example, describe several prominent examples of genes studied in relation to schizophrenia
6) Understand the potential uses and limitations of different animals models in mental illness research
7) Discuss the means by which genetic-environmental interactions can be studied, both in the clinic and using animal models
8) As an example, describe (from theory and practical experience) the use of *Drosophila* in addiction research
9) Discuss modern approaches to major mental illness, including protein-based methods
10) Debate and discuss ethical and sociological issues regarding mental illness

Detailed course content (Ementa):

Lectures:
L1. Introduction to mental illness – 1 h
L2. Therapeutic options – 1 h
L3. Antipsychotics, antidepressants and mood stabilisers – 2 h
L4. Environmental risk factors –1 h
L5. Genetic risk factors – 2 h
L6. Rodent models of major mental illness – 1 h
L7. Investigating mental illness in the clinic – 1 h
L8. Chronic mental illnesses as protein disorders – 1 h
L9. Innovative approaches for mental illness diagnosis and treatment – 2 h
L10. Psychiatric illness: The philosopher's perspective – 1 h

Seminars:
S1. Introduction to the course – 1 h
S2.-S4. Debates – 2 h each (6 total)
The seminars will revolve around discussing the various ethical, philosophical and sociological issues regarding mental illness, including their treatment, education and potential sources of stigma. This will occur primarily through a series of debates. Each student will be required to perform a presentation in one of the debates, while contributing to the discussion in the remaining two.

Avaliação: A avaliação dos alunos foi baseada na qualidade da apresentação, frequência e na participação nas discussões e seminários, cujos temas abordaram os tópicos propostos durante o período das reuniões.

O curso inclui aulas teóricas e a participação dos alunos, por meio de discussão dos temas de cada aula, leitura e análise crítica do material complementar e apresentação de questões para os palestrantes após cada aula teórica. As aulas serão exclusivamente ministradas na língua inglesa.