

CHEM 3008 BIODEVICES

Legacy Code 300890

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Student Contribution Band

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Restrictions

Successful completion of 60 credit points at Level 1 or 2.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Explicate many of the biodevices provided by Nature
2. Summarise the various biomolecules that biodevices are constituted from.
3. Understand self-organisation and supramolecular structures in nature.
4. Interpret and model some of the underlying processes that control biodevices using statistical thermodynamics and the lattice model.
5. Describe and explain biological computing.

Subject Content

1. Nature's nanomachines.
2. Understanding of structure and functions of lipid, DNA and proteins with respect to biodevices.
3. Supramolecular chemistry and how it translates to everyday concepts.
4. How does nature form self-organising supramolecular structures?
5. How ion channels work.
6. Applications of ion channels as biological sensors.
7. How to make a biological computer and its advantages over silicon-based super computers.
8. The future of biodevices and their limitations.
9. What thermodynamics and modelling can tell us with regard to the design of biodevices.

Prescribed Texts

- Ken A. Dill and Sarina. Bromberg. Molecular Driving Forces, 2nd edn. New York: Garland Science, 2010.