

## SUBJECT DESCRIPTION FORM

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Subject title: Advanced and Research Topics in Bioinformatics

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Subject code: COMP6821

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Credit value: 3

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Responsible staff and department:

Keith Chan (COMP)

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Pre-requisite: (Subject title and code no, if any)

Nil

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Recommended background knowledge:

Knowledge in data mining at the undergraduate level and basic molecular biology

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Mutual exclusions:

Nil

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Learning approach:

Staff will hold regular meetings with student. Student will survey research papers, discuss on research problems, conduct analysis, and give oral/written reports. The student has to submit at least one written report, which may be a survey, or a critical analysis of existing research results. Examination may be written or oral (in the presence of external members).

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Assessment:

Continuous Assessment	45%
Examination	55%

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Objectives:

- To equip student with appropriate research background and state-of-the-art knowledge in the area of research: bioinformatics.
- To train up student with ability to analyze and give critics to research papers.
- To allow student to learn skill to consolidate and produce technical research report.

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Keyword syllabus:

State-of-the-art research topics and issues, including, but not restricted to, some of the following:

- Sequence Alignment
- Database Searching for Similar Sequences
- Prediction of RNA Secondary Structure
- Gene Prediction
- Protein Classification and Structure Prediction
- Microarray Data Analysis
- Gene Regulatory Network
- Phylogenetic Prediction
- Genome Comparison

Indicative reading list and references:

- Journal of Bioinformatics
- Journal of Computational Biology
- Pacific Symposium on Biocomputing
- International Conference on Research in Computational Molecular Biology
- International Conference on Intelligent Systems for Molecular Biology
- ACM SIGKDD
- IEEE Computer Society