<table>
<thead>
<tr>
<th>Course Number</th>
<th>CS 438</th>
<th>Course Title</th>
<th>Bioinformatics Algorithms</th>
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<tbody>
<tr>
<td>Semester Hours</td>
<td>3</td>
<td>Course Coordinator</td>
<td>Xiaolan Huang</td>
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<tr>
<td>Catalog Description</td>
<td>This course is an introductory course on bioinformatics algorithms and the computational ideas that have driven them. The course includes discussions of different techniques that can be used to solve a large number of practical problems in biology.</td>
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### Textbooks


### References

### Course Learning Outcomes

- To learn basic concepts in molecular biology.
- To learn the basic algorithms used in bioinformatics applications.

### Assessment of the Contribution to Student Outcomes

<table>
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<tr>
<th>Outcome</th>
<th>1</th>
<th>2</th>
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<th>4</th>
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<tr>
<td>Assessed</td>
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### Prerequisites by Topic

CS 330 with a grade of C or better or graduate standing.
Major Topics Covered in the Course

1. Molecular Biology Primer {7 classes}
2. Exhaustive Search {6 classes}
3. Greedy Algorithms {3 classes}
4. Dynamic Programming Algorithms {6 classes}
5. Divide-and-Conquer Algorithms {3 classes}
6. Graph Algorithms {6 classes}
7. Clustering and Trees {6 classes}
8. Randomized Algorithms {3 classes}

NOTE: When course is taken as 500-level credit (CS 591 “Special Topics”), there will be additional requirements such as a research project.