**Program Proposal**

**Form B**

<table>
<thead>
<tr>
<th>Academic Group (College): ECS</th>
<th>Date of Submission to College Dean: February 7, 2011</th>
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</thead>
</table>

**Academic Organization (Department):**
- Computer Science

**Department Chair:** Cui Zhang

**Requested Effective:** Fall X, Spring __, 20_11__

**Title of the Program** *(Please be specific; indicate minor, undergraduate or graduate degree, etc.):*
- Computer Science Graduate Certificate in Data Mining

**Type of Program Proposal:**
- **X** Modification in Existing Program:
  - X Substantive Change
  - Non-Substantive Change
  - Deletion of Existing Program

- **New Programs**
  - Initiation (Projection) of New Program on to Master Plan
  - New Degree Programs
    - Regular Process
    - Fast Track Process
    - Pilot Process
  - New Minor, Concentration, Option, Specialization, Emphasis
  - New Certificate Program

**PLEASE NOTE:** Form B is to be used only as a Cover Form. Additional information is requested for each of the above as noted in the corresponding procedure in the Policies and Procedures for Initiation, Modification, Review and Approval of Courses and Academic Programs found at [http://www.csus.edu/umanual/acad.htm](http://www.csus.edu/umanual/acad.htm)

**Briefly describe the program proposal (new or change) and provide a justification.**

**Proposal:** To change the existing certificate in Bioinformatics Technology (12 units) to a certificate in Data Mining (9 units). This is a substantive revision to the existing certificate in Bioinformatics Technology including: title change, reduction of 3 units, addition of CSC 177, and deletion of 4 courses (CSC 215, CSC 258, CHEM 245, and Bio 224).

**Justification:** To meet the changing needs of the computing industry, we decided to tighten up the certificate program and focus on data mining. Towards this objective, CSC 177 is added to be a required course; Bioinformatics has become one of the application areas of data mining; CSC 215, CSC 258, CHEM 245, and Bio 224 are removed due to their less relevance to data mining.

The 9-units course requirement will make this certificate in Data Mining match with other existing 9-units certificates in CSC graduate program.

**Approvals:**

<table>
<thead>
<tr>
<th>Department Chair:</th>
<th>Date: 2/15/11</th>
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<tbody>
<tr>
<td>College Dean:</td>
<td>Date: 2/15/11</td>
</tr>
<tr>
<td>University Committee:</td>
<td>Date:</td>
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**Associate Vice President and Dean for Academic Affairs:**
ANALYSIS OF PROGRAM CHANGE PROPOSAL
FOR THE COMPUTER SCIENCE GRADUATE CERTIFICATE IN DATA MINING
February 7, 2011

1. Form B: Attached.

2. Programmatic or Fiscal Impact on Other Academic Units’ Programs.
   
   N/A

3. Fiscal Analysis of Proposed Changes.

   a. How will the proposed changes be accommodated within department/college existing fiscal resources?
      
      No additional resources are needed.

   b. If the proposed changes will require additional resources, describe the level and nature of additional funding the college will seek.
      
      N/A.

   c. What additional space, equipment, operating expenses, library, computer, or media resources, clerical/technical support, or other resources will be needed? Estimate the cost and indicate how these resource needs will be accommodated.
      
      N/A.

4. New/Old Program Requirements

   See the next page.
Proposed Changes:

Title change;
Reduction of 3 units;
Addition of CSC 177;
Deletion of 4 courses (CSC 215, CSC 258, CHEM 245, and Bio 224).

<table>
<thead>
<tr>
<th>NEW PROGRAM REQUIREMENTS</th>
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<tbody>
<tr>
<td><strong>Certificate in Data Mining (9 units)</strong></td>
<td><strong>Certificate in Bioinformatics Technology (12 units)</strong></td>
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<tr>
<td>(3) CSC 177 Data Warehousing and Data Mining (CSC 134 and STAT 50)</td>
<td></td>
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<tr>
<td>(3) CSC 212 Bioinformatics: Data Integration and Algorithms (CSC 130, STAT 50, and graduate status; BIO 10 recommended)</td>
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<td>(3) CSC 219 Machine Learning (fully classified graduate status in Computer Science, Software Engineering, or Computer Engineering)</td>
<td>(3) Select one of the following:</td>
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<td>(3) Select one of the following:</td>
<td>CSC 215 Artificial Intelligence (fully classified graduate status in Computer Science, Software Engineering, or Computer Engineering)</td>
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<td>CSC 244 Database Design (CSC 174 or CSC 204)</td>
<td>CSC 219 Machine Learning (fully classified graduate status in Computer Science, Software Engineering, or Computer Engineering)</td>
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<tr>
<td>CSC 212 Bioinformatics: Data Integration and Algorithms (CSC 130, STAT 50, and graduate status; BIO 10 recommended)</td>
<td>(3) Select one of the following:</td>
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<tr>
<td></td>
<td>CSC 244 Database Design (CSC 174 or CSC 204)</td>
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<td>CSC 258 Distributed Systems (CSC 204 and fully classified graduate status in Computer Science, Software Engineering, or Computer Engineering)</td>
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<tr>
<td>CHEM 245</td>
<td>Computational Chemistry (one semester of physical chemistry or instructor permission)</td>
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<tr>
<td>(3) Bio 224</td>
<td>Genomics, Proteomics and Bioinformatics (BIO 184, BIO 222, graduate status or instructor permission)</td>
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