Annual Academic Assessment Report Cover Sheet

Assessment reports are due the 1st Wednesday after the Fall Term
Email to: assessment@unlv.edu

Information:

<table>
<thead>
<tr>
<th>Program Assessed</th>
<th>Master of Science</th>
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<tbody>
<tr>
<td>Department</td>
<td>Computer Science</td>
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<tr>
<td>College</td>
<td>Engineering</td>
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<tr>
<td>Department Chair</td>
<td>Dr. Laxmi Gewali</td>
</tr>
<tr>
<td>Assessment Coordinator</td>
<td>Dr. Ajoy Datta</td>
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</table>

Date Submitted

Contact Person for This Report

<table>
<thead>
<tr>
<th>Name</th>
<th>Ajoy Datta</th>
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<tbody>
<tr>
<td>Phone</td>
<td>702-895-0870</td>
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<tr>
<td>Email</td>
<td><a href="mailto:Ajoy.datta@unlv.edu">Ajoy.datta@unlv.edu</a></td>
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Please attach a narrative (not to exceed 4 pages, excluding appendices) addressing the following:

- What are the student learning outcomes? Please provide a numbered list.
- Which learning outcomes were assessed?
- How were they assessed? (Programs must use at least one direct assessment of student learning.)
- Undergraduate programs should assess at least one University Undergraduate Learning Outcome (UULO) each year, which may or may not overlap with a program learning outcome.
- Graduate programs should assess at least one outcome related to one of the following graduate level requirements each year: o student engagement in research, scholarship, creative expression and/or appropriate high-level professional practice. o activities requiring originality, critical analysis and expertise. o the development of extensive knowledge in the field under study.
- What was learned from the assessment results?
- How did the program respond to what was learned?

Please limit the narrative portion of your report to no more than four pages. You may attach appendices with data, tables, charts, or other materials as needed. Please explain the relevant conclusions from any appendices in your narrative. Please contact the Office of Academic Assessment if you have questions or need assistance.
For the MS degree in computer science we have specified the following student outcomes:

1. Acquires in-depth knowledge of specialized areas and advanced topics in computer science.
2. Can independently analyze, design, and implement an innovative computer application or research project.
3. Prepares a final project or research report on the solution to a computer-related problem.
4. Presents the results of their research orally. The Computer Science master’s program gives students the opportunity to study different areas, including:

   • Design and analysis of algorithms
   • Operating and distributed systems
   • Computer architecture and networking
   • Computational geometry and robotics
   • Computer graphics and image processing
   • Programming languages and compiler construction
   • Artificial intelligence and expert systems
   • Database design, document analysis and retrieval
   • Software engineering

The following learning outcomes were assessed:

   • Prepares a final project or research report on the solution to a computer-related problem.
   • Presents the results of their research orally

Students were assessed by:

   • Submitting a written report to a CS faculty committee. The results were collected on how well the project is written and how their findings are described.
   • Presenting their thesis or project report in an oral presentation to the CS faculty and graduate students. Results were collected on how well the students presented their work.
Assessing Student Engagement in Research

A student’s research work in Independent Study and thesis research was assessed by the student's thesis committee. Finally, the committee also assessed the final report and the presentation.

Assessment results:

The following categories have been defined for detailed assessment. In each category, an achievement of 50% or higher is mapped to Satisfactory, 25% to 50% to Developing, and the rest to Unsatisfactory.

1. Research Questions:
   • Have you identified your broad research area?
   • Have you identified detailed research topics within your broad area?
   • Have you developed a novel theory and methods within the selected topic?
   • Have you summarized your research findings in a technical report or a paper?

2. Literature Review
   • Can you find books and research papers on a given topic from our library?
   • Can you find research papers and articles on a given topic from digital libraries and other online resources? (e.g. IEEE Explorer, ACM Digital Library, or Science Direct)

3. Methods
   • Have you done an algorithm’s complexity analysis?
   • Have you done the empirical analysis through experiments?
   • Are you familiar with approximation techniques and other simulation techniques such as Monte Carlo Technique?
   • Can you describe your algorithm in UML Diagrams?

4. Results
   • Can you interpret the experimental results accurately?
   • Can you identify anomalies and outliers in your results?
   • Can you tabulate the results and visualize it in graphs?

5. Format
   • Can you write a technical paper in Latex using AMS or in a similar format?
   • Can you use Equation editor in MS word?
   • Can you use reference management tools such as BIBTeX?
6. Verbal Communications
   • Have you presented your research results through seminars and conference presentations?

The categories were evaluated as following.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Satisfactory</th>
<th>Developing</th>
<th>Unsatisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Questions</td>
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<td></td>
<td></td>
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<tr>
<td>Literature Review</td>
<td>X</td>
<td></td>
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<tr>
<td>Methods</td>
<td>X</td>
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<td>Results</td>
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<td>Format</td>
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<td>Verbal Communications</td>
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• Student thesis/project reports and oral examinations indicated the students have met all the desired learning outcomes. The MSCS Program is performing very well.

• Based on the outcomes, no program changes will be taken at this time. The responsibility for changes is shared by the CS Graduate Committee and any changes are subject to a vote by the CS Department tenured faculty.

**Respond to what was learned:**

Based on assessments, no recommendations for changes to the MS program were made.

The CS Department is encouraging faculty members to attend workshops on assessment processing both outside and inside UNLV.