DE LA SALLE UNIVERSITY
College of Science
Department of Mathematics

TRIGBIO – Trigonometry for Biology Majors
Prerequisite: MATH111
Prerequisite to:

Instructor: [Instructor Name]
Consultation Hours: [Consultation Hours]
Contact details: [Contact Details]
Class Schedule and Room: [Class Schedule and Room]

Course Description
A course covering concepts and operations on functions and relations, with emphasis on polynomial functions, exponential and logarithmic functions, trigonometric functions and solutions of right triangles.

Learning Outcomes
On completion of this course, the student is expected to present the following learning outcomes in line with the Expected Lasallian Graduate Attributes (ELGA)

<table>
<thead>
<tr>
<th>ELGA</th>
<th>Learning Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical and Creative Thinker</td>
<td>On the completion of the course, the student is expected to be able to apply appropriate trigonometric concepts, thinking processes and tools in the solution to various conceptual or real-world problems.</td>
</tr>
<tr>
<td>Effective Communicator</td>
<td></td>
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<tr>
<td>Lifelong Learner</td>
<td></td>
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<tr>
<td>Service-Driven Citizen</td>
<td></td>
</tr>
</tbody>
</table>

Final Course Output
As evidence of attaining the above learning outcomes, the student is required to submit the following during the indicated dates of the term.

<table>
<thead>
<tr>
<th>Learning Outcome</th>
<th>Required Output</th>
<th>Due Date</th>
</tr>
</thead>
</table>
| On the completion of the course, the student is expected to be able to apply appropriate trigonometric concepts, thinking processes and tools in the solution to various conceptual or real-world problems. | Submit a paper discussing an application of the topics learned in the course that is related to your degree.  
The output is type-written on at least three pages of letter paper using the font Arial, 11pt, double space and 1” margin all round.  
The topic of the paper is subject to the approval of the faculty handling the course.  
As much as possible, there should be no duplication of topics.  
The bibliography should involve two journal articles, two books or one of each. | Week 13 |

Rubric for assessment

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Excellent (4)</th>
<th>Good (3)</th>
<th>Satisfactory (2)</th>
<th>Needs Improvement (1)</th>
</tr>
</thead>
</table>
| Content and Organization (50%) | In depth and insightful discussion  
Logical sequencing of information throughout  
Sufficient supporting details  
Clear and effective concluding paragraph | Logical sequencing of information throughout  
Sufficient supporting details  
Clear and effective concluding paragraph | Logical sequencing of information most of the time  
Details are given but inadequate to support the topic  
Clear concluding paragraph but lacks effectiveness | Information presented with little organization  
Most of the details are irrelevant  
Concluding paragraph not clear |
| Grammar (30%)             | No error      | Between one and three errors | More than four errors |
| Bibliography (20%)        | All resources cited | Some of the resources not cited | Majority of the resources not cited |
**Additional Requirements**
Aside from the learning output, the student will be assessed at other times during the term by the following: Quizzes, Seatwork, Homework, Board work and Recitation.

**Grading System**

<table>
<thead>
<tr>
<th></th>
<th>FOR EXEMPTED STUDENTS (w/out Final Exam)</th>
<th>FOR STUDENTS with FINAL EXAM with no missed quiz</th>
<th>FOR STUDENTS with FINAL EXAM with one missed quiz</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average of quizzes</td>
<td>95%</td>
<td>65%</td>
<td>55%</td>
<td>95-100%</td>
</tr>
<tr>
<td>Seatworks, Homework, Learning output</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>89-94%</td>
</tr>
<tr>
<td>Final exam</td>
<td></td>
<td></td>
<td></td>
<td>83-88%</td>
</tr>
</tbody>
</table>

**Learning Plan**

<table>
<thead>
<tr>
<th>LEARNING OUTCOME</th>
<th>TOPIC</th>
<th>WEEK NO.</th>
<th>LEARNING ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the completion of the course, the student is expected to be able to apply appropriate trigonometric concepts, thinking processes and tools in the solution to various conceptual or real-world problems.</td>
<td>I FUNCTIONS AND THEIR GRAPHS Functions Function Notation, Operations on Functions, and Types of Functions - Sum, Difference, Product, Quotient, Composite - odd function/even function Inverse Functions Symmetry of a Graph</td>
<td>Week 1-3</td>
<td>Seatwork Boardwork Lecture and Discussion Practice Exercises</td>
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<tr>
<td></td>
<td>I FUNCTIONS AND THEIR GRAPHS Linear Function - Equations of a Line and its Applications - Quadratic Functions and its Applications (Maximum and Minimum Values)</td>
<td>Week 4-5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>II POLYNOMIAL FUNCTIONS Exponents and the Number e Exponential and Logarithmic Functions and their Properties Exponential and Logarithmic Equations Exponential and Logarithmic Models: (exponential growth and decay; population growth, bacterial growth, radioactive decay, compound interest, continuous compounding, logistic growth, learning curve)</td>
<td>Week 5-8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>III EXPONENTIAL AND LOGARITHMIC FUNCTIONS Angles and Their Measurement Trigonometric Functions of Angles Trigonometric Function Values The Sine and Cosine of Real Numbers Graph of the Sine and Cosine And their variations</td>
<td>Week 8-10</td>
<td></td>
</tr>
</tbody>
</table>
The Tangent, Cotangent, Secant, and Cosecant of Real Numbers

V ANALYTIC TRIGONOMETRY
The Eight Fundamental Identities
Proving Trigonometric Identities
Sum and Difference Identities
Double-measure and Half-measure Identities
Solving Trigonometric Equations
Solutions of Right Triangles
-Angle of Elevation/Depression

FINAL EXAM

References

Online Resources

Class Policies
1. The required minimum number of quizzes for a 3-unit course is 3, and 4 for 4-unit course. No part of the final exam may be considered as one quiz.
2. Cancellation of the lowest quiz is not allowed even if the number of quizzes exceeds the required minimum number of quizzes.
3. As a general policy, no special or make-up tests for missed exams other than the final examination will be given. However, a faculty member may give special exams for
   A. absences due to serious illness which require hospitalization, death in the family and other reasons which the faculty member deems meritorious.
   B. approved absences (where the student concerned officially represented the University at some function or activity).
4. If a student missed two (2) examinations, then he/she will be required to take a make up for the second missed examination.
5. If the student has no valid reason for missing an exam (for example, the student was not prepared to take the exam) then the student receives 0% for the missed quiz.
6. Students who get at least 89% in every quiz are exempted from taking the final examination. Their final grade will be based on the average of their quizzes and other prefinal course requirements. The final grade of exempted students who opt to take the final examination will be based on the prescribed computation of final grades inclusive of a final examination. Students who missed and/or took any special/make-up quiz will not be eligible for exemption.
7. Learning outputs are required and not optional to pass the course.
8. Mobile phones and other forms of communication devices should be on silent mode or turned off during class.
9. Students are expected to be attentive and exhibit the behavior of a mature and responsible individual during class. They are also expected to come to class on time and prepared.
10. Sleeping, bringing in food and drinks, and wearing a cap and sunglasses in class are not allowed.
11. Students who wish to go to the washroom must politely ask permission and, if given such, they should be back in class within 5 minutes. Only one student at a time may be allowed to leave the classroom for this purpose.
12. Students who are absent from the class for more than 5 meetings will get a final grade of 0.0 in the course.
13. Only students who are officially enrolled in the course are allowed to attend the class meetings.

Approved by:

Chair, Mathematics Department

April, 2014