Calculus II (SDSU Math 151 Calculus II)
Readiness Profile & Course Expectations

Students must have a "3" or higher on the Advanced Placement (AP) Calculus AB Exam or the AB sub-score of the AP Calculus BC Exam.

Below are some guidelines for choosing the best course for an individual student. This *not* a placement test and it should *not* be used as the only criteria for making placement decisions. *Credit is granted through San Diego State University and students must have successfully completed the equivalent of college-level Calculus I.*

Student Background
Students entering **Calculus II** should *already* have a good understanding of the following concepts:

- Limits (graphically, numerically, and finding them algebraically).
- Derivatives of all functions (including trigonometric, inverse trigonometric, exponential, and logarithmic functions).
- Integration of standard functions (including all trigonometric functions) and solving integration problems using *u*-substitution.
- Students also need to have experience working with polar coordinates and need to know how to find the trigonometric and inverse trigonometric values corresponding to each standard angle on the unit circle *without a calculator or note sheet*.

Students entering **Calculus II** should also be able to solve problems such as

Limit Problem: Find $\lim\limits_{x \to -\infty} \dfrac{\sqrt{x^2 + 4x}}{4x + 1}$. What does this mean about the graph of the function?	Derivative Problem: Find $\dfrac{d}{dx}\left[\ln(e^{2x} \sec x^3)\right]$. Simplify your answer.
Integration Problem: Solve $\displaystyle\int_{e}^{e^4} \dfrac{3 + \ln x}{x\sqrt{\ln x}}\,dx$.	Numerical Problem: Approximate the area under the graph of $f(x) = 25 - x^2$ from $x = 2$ to $x = 5$ using six rectangles with left endpoints. Sketch. Repeat with right endpoints and again with trapezoids. Compare to the exact answer.

Students entering **Calculus II** are expected to do the following things:

- Keep up with daily assignments without a daily check from the teacher.
- Work with classmates to solve problems and understand concepts.
- Prepare projects outside of class and give presentations in front of peers.
- Solve complex problems without the use of a calculator or note sheet.

Course Content and Expectations
In **Calculus II**, students will learn concepts such as

- Advanced Integration Techniques
- Infinite Sequences and Series
- Introduction to Differential Equations
- Formal Analysis of Limits
- Parametric Equations

Textbook: *Calculus: Early Transcendentals*, 6th edition, Brooks/Cole 2007, Stewart.

Students will be expected to spend an average of approximately 2 to 3 hours outside of class on homework for each class period. Approximately 1 section from the text will be covered per class and one chapter every 5 weeks. Each semester will have approximately 5 tests and no formal quizzes. Grades will be calculated within the following guidelines:
- Tests and Quizzes: 70 – 80%
- Homework: 15 – 25%

There may also be projects such as
- Presentations to the class
- Computer activities with the program *Mathematica*

Test Scores
Other indicators of potential success in **Calculus II** include test scores near or above the following values:

- Advanced Placement Calculus AB Exam: 4 or 5
- AB Sub-Score on AP Calculus BC Exam: 4 or 5
- Students who score a "3" on these exams are eligible for Calculus C, however they may find more success in AP Calculus BC.

Other Comments

Calculus II is a rigorous college course. Students are expected to spend significant amounts of time completing and understanding assignments, preparing projects, studying for exams, and reviewing material each week. As in most college courses, students in Calculus II have only a few opportunities to demonstrate understanding on tests and projects, therefore each assessment will have a significant impact on a student's grade.

Note that students who do not need the additional units for high school graduation are strongly encouraged to have the Calculus II course NOT appear on their high school transcripts. This makes it much more likely for colleges to accept the transfer units. More details are given in class.