Math 123: Syllabus and Integration By Parts

Ryan Blair

CSU Long Beach

Tuesday August 27, 2013

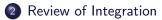
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Syllabus and By Parts

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Syllabus Highlights





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Syllabus Highlights

 $\label{eq:course} Course \ Webpage: $$ http://www.csulb.edu/~rblair/Math123F13/index.html $$$

Here you will find

- Lecture slides
- Ourse Calendar
- A link to Webassign
- A copy of the syllabus
- A link to Beachboard (where your quiz, homework and test scores are posted)
- Other useful links

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Required Text: Stewart, Essential Calculus: Early Transcendentals, Second Edition

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Grading

- 20% Homework
- 20% Quizzes
- 15% Midterm 1
- I5% Midterm 2
- 30% Final

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DQC

- Online on WebAssign (http://www.webassign.net/)
- Class key is csulb 5042 5720.
- Access Code is sold with the text book package from the library.

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- There will be 5 quizzes in discussion sessions.
- **Q** Quiz questions will be based on previous homeworks and lectures.

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Mark your calendars

- Midterm 1: Sep. 26
- Ø Midterm 2: Nov. 7
- Final: Dec. 12

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Classroom Decorum:

- No Talking
- No Texting
- Cellphone Ringers Off
- Laptops and cell phones only used for class activities.

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Adding the Course

Speak to me about adding the class after class.

Priority goes to those students that attended the discussion yesterday. Space is limited.



Grades will be computed by the following absolute scale:

- A 85 100%
- ❷ B 70 − 85%
- S C 60 − 70%
- ❹ D 50 60%
- S F 0 − 50%



- Accommodations because of a disability
- e Help outside of class
- Withdraw
- Academic Integrity

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If F'(x) = f(x), then by definition F(x) is the **antiderivative** of f(x) and $\int f(x)dx = F(x) + c$.

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Theorem

(Fundamental Theorem of Calculus, Part 2) If f is continuous on [a, b], then

$$\int_{a}^{b} f(x) dx = F(b) - F(a)$$

Where F is any antiderivative of f, that is, a function such that F' = f.

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Examples: Evaluate $\int_0^1 x^2 + 1 dx$.

U-Substitution for definite integrals

Theorem

If u = g(x) is a differentiable function and f is continuous, then

$$\int_a^b f(g(x))g'(x)dx = \int_{g(a)}^{g(b)} f(u)du$$

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Examples: Evaluate $\int_0^1 x e^{x^2} dx$. **Examples:** Evaluate $\int tan(x) dx$.

$$\int u(x)v'(x)dx = u(x)v(x) - \int u'(x)v(x)dx$$

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Example: Derive the above formula from the product rule for derivatives and the fundamental theorem of calculus.

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Example: Find $\int xe^x dx$. **Example:** Find $\int x^2 sin(x) dx$. **Example:** Find $\int cos(x)e^x dx$. **Example:** Find $\int ln(x) dx$.

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