

# King Fahd University of Petroleum and Minerals

Department of Mathematical Sciences

Syllabus of **Math 132 (061)**

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Course #: Math 132 , Title: Applied Calculus

Textbook: *Introductory Mathematical Analysis for Business, Economics, and the life and Social Sciences*, by Ernest F. Haeussler, Jr. & Richard S. Paul, 11<sup>h</sup> ed. (2005).

| Week  | Date            | Section | Material                                    | Homework            |
|---|-----------------|---------|---|---------------------|
| 1   | Sept. 09-14*    | 10.1    | Limits                                      | 17,18,33,40,43      |
|   |                 | 10.2    | Limits (cont'd)                             | 2,15,36,42,52,57    |
|   |                 | 10.4    | Continuity                                  | 5,11,24,32,37       |
| 2   | Sept. 16-20     | 11.1    | The Derivative                              | 13, 14,17,26,27     |
|   |                 | 11.2    | Rules for Differentiation                   | 22,34,61,73,78,85   |
|   |                 | 11.3    | The Derivative as a Rate of Change          | 8,12,16,20,27,39,41 |
| <b>Saturday, September 23 ( National Holiday)</b> |                 |         |   |                     |
| 3   | Sept. 25-27     | 11.4    | Differentiability and Continuity            |                     |
|   |                 | 11.5    | Product and Quotient Rules                  | 10,16,37,50,61,66   |
| 4   | Sept. 30-Oct. 4 | 11.6    | The Chain Rule and the Power Rule           | 8,18,44,46,62,69,72 |
|   |                 | 12.1    | Derivatives of Logarithmic Functions        | 18,20,26,32,50      |
|   |                 | 12.2    | Derivatives of Exponential Functions        | 16,26,30,38,39      |
| 5   | Oct. 7-11       | 12.4    | Implicit Differentiation                    | 10,18,24,26,34      |
|   |                 | 12.5    | Logarithmic Differentiation                 | 8,12,19,21,26       |
|   |                 | 12.7    | Higher Order Derivatives                    | 2,14,30,34,37       |
| <b>Major Exam I, Suggested time: Oct. 9</b>       |                 |         |   |                     |
| <b>Eid Al-Fitr Vacation</b>                       |                 |         |   |                     |
| 6   | Oct. 28 Nov. 01 | 13.1    | Relative Extrema                            | 18,30,46,48,60      |
|   |                 | 13.2    | Absolute Extrema on a Closed Interval       | 2,10,12             |
|   |                 | 13.3    | Concavity                                   | 14,30,40,46,68      |
| 7   | Nov. 4-8        | 13.4    | The Second-Derivative Test                  | 6,8,12              |
|   |                 | 13.5    | Asymptotes                                  | 14,22,38,46         |
|   |                 | 13.6    | Applied Maxima and Minima                   | 2,14,18,22,26       |
| 8   | Nov. 11-15      | 14.1    | Differentials                               | 12,18,22,28         |
|   |                 | 14.2    | The Indefinite Integral                     | 10,20,30,42,50      |
| 9   | Nov. 18-22      | 14.3    | Integration with Initial Conditions         | 6,8,10,12,14        |
|   |                 | 14.4    | More Integration Formulas                   | 9,15,35,53,70,75    |
|   |                 | 14.5    | Techniques of Integration                   | 6,18,30,44,48,55    |
| 10  | Nov. 25-29      | 14.8    | The Fundamental Theorem of Int. Calculus    | 16,32,36,44,48      |
|   |                 | 14.10   | Area  | 9,15,20,24,34       |
|   |                 | 14.11   | Area between Curves                         | 1,5,12,30,30,32     |
| <b>Major Exam II, Suggested time: Nov. 27</b>     |                 |         |   |                     |
| 11  | Dec. 2-6        | 15.1    | Integration by parts                        | 8,12,18,20,24,28,32 |
|   |                 | 15.3    | Integration by Tables                       | 8,12,30,36,49,54    |
| 12  | Dec. 9-13       | **      | Derivatives and Integrals of Trig. Function | <b>Handout</b>      |
| 13  | Dec. 16-20      | 17.1    | Functions of Several Variables              | 2,5,12,16,23,28     |

| Eid Al-Adha vacation |           |      |  |                    |
|----------------------|-----------|------|--|--------------------|
| 14                   | Jan. 6-10 | 17.2 | Partial Derivatives                      | 6,18,20,28,34      |
|                      |           | 17.5 | Higher Order Partial Derivatives         | 6,9,12,20,21       |
| 15                   | Jan-13-17 | 17.7 | Maxima and Minima for funs. of Two Vars. | 4,8,15,19,22,26,29 |

\*Thursday, September 14, 2006: Normal Saturday classes.

- KFUPM attendance policy will be strictly enforced
- Suggested time for major exams:
  1. **First Major: Monday, October 9, 2006**
  2. **Second Major: Monday November 27, 2006**
- Final Exam is comprehensive and will be announced by the registrar.