

# Math 1014 –L10 Calculus II, Spring 2022

Tentative Weekly Schedule (Tuesday, Thursday 12:00PM–1:20PM)

## Week 1:

- Lecture (Lec.)1: (Feb 8) Review of definite integrals and the Fundamental Theorem of Calculus (§4.1-§4.3);
- Lec.2: (Feb 10) Substitution Method (§4.4);

## Week 2:

- Lec.3: (Feb 15) Integrating by parts (§4.5);
- Lec.4: (Feb 17) Trigonometric integrals (§4.6);

## Week 3:

- Lec.5: (Feb 22) The method of partial fractions (§4.6);
- Lec.6: (Feb 24) Numerical integration (§4.7);

## Week 4:

- Lec.7: (Mar 1) Improper integrals (§4.8);
- Lec.8: (Mar 3) Areas between curves (§5.1);

## Week 5:

- Lec.9: (Mar 8) Volumes by slicing (§5.2);
- Lec.10: (Mar 10) Volume by cylindrical shells (§5.2);

## Week 6:

- Lec.11: (Mar 15) Arc lengths and surface areas (§5.3, §5.4);
- Lec.12: (Mar 17) Polar coordinates and calculus (§5.5);

## Week 7:

- Lec.13: (Mar 22) Work (§5.7);
- Lec.14: (Mar 24) Infinite sequences and series (§6.1, §6.2);

## Week 8:

- Lec.15: (Mar 29) Integral test (§6.3);
- Lec.16: (Mar 31) Comparison tests (§6.4);
- Midterm Exam: Apr 3 (Sunday), Time and Venue: TBA;

## Week 9:

- Lec.17: (Apr 7) Alternating series (§6.5);

## Week 10:

- Lec.18: (Apr 12) Absolute and conditional convergence (§6.5);
- Term break: Apr 13 - Apr 18;

## Week 11:

- Lec.19: (Apr 19) Taylor and Maclaurin series (§7.1);
- Lec 20: (Apr 21) Representation of functions as power series (§7.2);

## Week 12:

- Lec.21: (Apr 26) Interval of convergence of a power series (§7.3);
- Lec.22: (Apr 28) Applications of Taylor series (§7.4);
- Labor Day: May 2;

## Week 13:

- Lec.23: (May 3) Three dimensional coordinate systems;
- Lec.24: (May 5) Vectors; Dot product;

## Week 14:

- Lec.25: (May 10) Cross product;

## Study Break: May 12-16

## Spring Term Examinations: May 17-28

Textbook: (many sections refer to) J. Hu, W.-P. Li, Y. Wu, Calculus for scientists and engineers with matlab.

Additional Reference for Vectors: J. Stewart's, Calculus Early Transcendentals, §12.1-12.4.