Math 132-H – Honors Calculus II – Course Outline – Fall 2020

1. **Aug 24–28:** Monday: review the syllabus. Wed-Fri recorded lectures: 5.3–5.4 (intro to integration)
   Worksheet: reviewing Riemann sums
   Homework 1: The fundamental theorem of calculus (due Sep 2)
2. **Aug 31 – Sep 4:** Lectures, 5.5 and 6.1 (substitution and areas)
   Worksheet: Setting up an integral to find an area
3. **Sep 7–11:** Lectures, 6.2 and 7.1 (volumes and integration by parts).
   Worksheet: Volumes of revolution
   Homework 2: Areas and volumes (due Sep 16)

Midterm 1, September 18 (covers 5.3–5, 6.1–2, 7.1)

4. **Sep 14–18:** Lectures, 7.2 and 7.3 (trig integrals and trig substitution)
   Worksheet: Trig integrals (and key trig identities)
   Midterm 1 review (Sep 16)
5. **Sep 21–25** Lectures, 7.4 (integration by partial fractions)
   Worksheet: Practice computing partial fraction decompositions, and some simple integrals
   Homework 3: Partial fractions (due Sep 30)
6. **Sep 28 – Oct 2:** Lectures, 7.5 and 7.8 (integration review and improper integrals)
   Worksheet: Some improper integrals, reviewing l'Hôpital.

Midterm 2, October 9 (covers 7.2–5, 7.8)

7. **Oct 5–9:** Lectures, 11.1 and start 11.2 (sequences, start series)
   Worksheet: convergence and divergence of sequences
   Homework 4: Sequences (due Oct 14)
   Midterm 2 review (Oct 7)
8. **Oct 12–16:** Lectures, 11.2–11.4 (integral and comparison tests)
   Worksheet: Integral test
9. **Oct 19–23:** Lectures, 11.5–11.6 (alternating series, ratio and root tests)
   Worksheet: Alternating series, absolute vs conditional convergence
   Homework 5: Convergence tests (due Oct 28)
10. **Oct 26–30:** Lectures, 11.7–11.8 (series review and power series)
    Worksheet: Figuring out which series test to use

Midterm 3, November 6 (covers 11.1–8)

11. **Nov 2–6:** Lectures, 11.9 and 11.10 (Taylor series)
    Worksheet: New Taylor series expansions from old
    Homework 6: Taylor series in the sciences (due Nov 11)
    Midterm 3 review (Nov 4)
12. **Nov 9–13:** Lectures, 10.1 and 10.2 (parametric curves)
    Worksheet: Tangent lines to parametric curves
13. **Nov 16–20:** Lectures, 10.3 and 10.4 (polar coordinates)
    Worksheet: Arclengths in polar coordinates

Final Exam, week of November 30 (cumulative, but slight emphasis on 11.9–10, 10.1–4)