

# Schedule

A week-by-week breakdown of the material.

## Week 1 (01/11-1/15)

**Day 1** Introduction

**Day 2** Sequences (11.1). Limit of sequence. Limit Laws<sup>1</sup>

**Day 3** Sequences (11.1). Limit of sequence. Limit Laws (cont)<sup>2</sup>

**Day 4** Sequences (cont, 11.1). Bounded Sequences<sup>3</sup>

## Week 2 (01/18-01/22)

**Day 1** Infinite Series (11.2). Introduction<sup>4</sup>

**Day 2** Infinite Series (11.2). Geometric Series. Divergence Test<sup>5</sup>

**Day 3** Positive Terms series (11.3)<sup>6</sup>

**Day 4** Positive Terms series (11.3), comparison and limit comparison tests<sup>7</sup>  
Absolute vs Conditional Convergence (11.4).

## Week 3 (01/25-01/29)

**Day 1** Ratio and Root tests (11.5).

**Day 2** Power Series (11.6).

**Day 3** Power Series (cont, 11.6).

**Day 4** Taylor Series (11.7).

## Week 4 (02/01-02/05)

**Day 1** Chapter 11 Review/Catchup.

**Day 2** Vectors in the Plane (13.1).

**Day 3** Vectors in the Plane (13.1, cont).

**Day 4** Vectors in the Space (13.2). Equations for lines in space.

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<sup>1</sup>[notes/sequences.html](https://www.math.uwaterloo.ca/~dgg2801/notes/sequences.html)

<sup>2</sup>[notes/sequences.html](https://www.math.uwaterloo.ca/~dgg2801/notes/sequences.html)

<sup>3</sup>[notes/sequences\\_bounded.html](https://www.math.uwaterloo.ca/~dgg2801/notes/sequences_bounded.html)

<sup>4</sup>[notes/series\\_intro.html](https://www.math.uwaterloo.ca/~dgg2801/notes/series_intro.html)

<sup>5</sup>[notes/series\\_intro.html](https://www.math.uwaterloo.ca/~dgg2801/notes/series_intro.html)

<sup>6</sup>[notes/series\\_positive.html](https://www.math.uwaterloo.ca/~dgg2801/notes/series_positive.html)

<sup>7</sup>[notes/series\\_positive.html](https://www.math.uwaterloo.ca/~dgg2801/notes/series_positive.html)

## **Week 5 (02/08-02/12)**

**Day 1** Dot product and angles (13.3).

**Day 2** Dot product and angles (cont, 13.3). Projections.

**Day 3** Cross product (13.4).

**Day 4 Midterm 1**

## **Week 6 (02/15-02/19)**

**Day 1** Equations for planes (13.5).

**Day 2** Equations for planes (cont, 13.5).

**Day 3** Polar, Cylindrical and Spherical Coordinates (12.3, 13.7).

**Day 4** Vector-valued functions (14.1).

## **Week 7 (02/22-02/26)**

**Day 1** Limits, derivatives, integrals for vector-valued functions (14.2). Derivative as tangent vector.

**Day 2** Arc Length (14.3).

**Day 3** Curvature (14.4). Normal vectors.

**Day 4** Functions of several variables (15.1). Level curves.

## **Week 8 (03/07-03/11)**

**Day 1** Limits and Continuity in several variables (15.2).

**Day 2** Partial Derivatives (15.3).

**Day 3** Differentiability (15.4). Linear Approximation.

**Day 4** Gradient, Directional derivatives (15.5).

## **Week 9 (03/14-03/18)**

**Day 1** Gradient, Directional derivatives (15.5, cont).

**Day 2** Review.

**Day 3** Chain rule (15.6).

**Day 4 Midterm 2**

## **Week 10 (03/21-03/25)**

**Day 1** Optimization (15.7).

**Day 2** Optimization (cont, 15.7).

**Day 3** Lagrange Multipliers (15.8).

**Day 4** Integration in two variables (16.1).

## **Week 11 (03/28-04/01)**

**Day 1** Integration over more general regions (16.2).

**Day 2** Integration over more general regions (cont, 16.2).

**Day 3** Integrals in 3 dimensions (16.3).

**Day 4** Integrals in Polar, Cylindrical, Spherical coordinates (16.4).

## **Week 12 (04/04-04/08)**

**Day 1** Change of variables (16.6).

**Day 2** Change of variables (cont, 16.6).

**Day 3** Catchup

**Day 4** Catchup

## **Week 13 (04/11-04/15)**

**Day 1** Catchup

**Day 2** Catchup

**Day 3** Catchup

**Day 4** Catchup