**Math 162B Suggested Syllabus**

**Text:** *Elementary Differential Geometry,* by Barrett O’Neill, revised 2nd edition

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| **Lecture** | **Section** | **Topic(s)** |
| 1 | **Review** | Review of Math 162A |
| 2 | 4.6 | Integration of Forms |
| 3 | 4.6 | Integration of Forms (cont) |
| 4 | 4.7 | Topological Properties of Surfaces |
| 5 | 4.7 | Topological Properties of Surfaces (cont) |
| 6 | 4.8 | Differential Forms and Mappings |
| 7 | 5.1 | The Shape Operator of M |
| 8 | 5.2 | Normal Curvature |
| 9 | 5.3 | Gaussian Curvature |
| 10 | 5.4 | Computational Techniques |
| 11 | 5.4 | Computational Techniques (cont) |
| 12 | 5.4 | Computational Techniques (cont) |
| 13 | 5.5 | The implicit Case |
| 14 | 5.6 | Special Curvatures in a Surface |
| 15 | 5.6 | Special Curvatures in a Surface (cont) |
| 16 | 5.7 | Surface of Revolution |
| 17 | 5.7 | Surface of Revolution (cont) |
| 18 | 6.1 | The Fundamental Equations |
| 19 | 6.1 | The Fundamental Equations (cont) |
| 20 | 6.2 | Form Computations |
| 21 | 6.2 | Form Computations (cont) |
| 22 | 6.3 | Some Global Theorems |
| 23 | 6.3 | Some Global Theorems (cont) |
| 24 | 6.4 | Isometry and Local Isometry |
| 25 | 6.5 | Intrinsic Geometry of Surfaces in |
| 26 | 6.6 | Orthogonal Coordinates |
| 27 | 6.7 | Integration and Orientation |
| 28 | 6.8 | Total Curvature |
| 29 | 6.9 | Congruence of Surfaces |