

**King Fahd University of Petroleum & Minerals**

**Department of Mathematics and Statistics**

**Math 665: Advanced Ordinary Differential Equations II, Term 202**

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**The Course Content:** Self-adjoint boundary-value problems, Sturm-Liouville theory. Oscillation and comparison theorems. Asymptotic behavior of solutions. Periodic and singular Sturm-Liouville problems. Hypergeometric functions and related special functions.

**Textbook:**

Teschl, Gerald. Ordinary Differential Equations and Dynamical Systems. Vol. 140. American Mathematical Soc., 2012.

**References:**

1. Al-Gwaiz, Mohammed A. Sturm-Liouville Theory and its Applications. Vol.7. Berlin. Springer, 2008.
2. Levitan, Boris Moiseevich, and Ishkhan Saribekovich Sargsjan. Sturm-Liouville and Dirac Operators. Springer, 1991.

**The Grading Policy:** Homeworks (15%), Online Assessments (15%), Midterm (30%), Final (40%) (Comprehensive; Date and Location: To Be Announced)

**Office Hours:** Each working day 1:00 pm–4:00 pm (by appointment)