

Teoria Espectral

Contents

- Introduction.
- Fourier transform, distributions, Sobolev spaces.
- Unbounded linear operators.
- Self adjoint operators.
- The Kato-Rellich theorem. Applications.
- Spectral theorem.
- Stone's theorem.
- Semigroup theory, Hille-Yosida theorem, Lumer-Phillips theorem. Applications.

Bibliography

- N.I. Akhiezer and I.M. Glazman. Theory of unbounded linear operators in Hilbert space. New York: Frederick Ungar, 1981-. 2 v.
- L.C. Evans, Partial Differential Equations. Graduate Studies in Mathematics, Volume 19, AMS, 1998.
- A. Friedman, Partial Differential Equations. Holt, Rinehart and Winston, New York, 1976.
- E. Hille. Methods in Classical and Functional Analysis Reading, Mass.: Addison-Wesley, [1972]. ix, 486 p.
- T. Kato. Perturbation theory for linear operators. Berlin: Springer, c1995. 619 p.
- A. Pazy, Semigroups of Linear Operators and Applications to Partial Differential Equations. Applied Mathematical Sciences 44, Springer-Verlag 1983.
- M. Reed and B. Simon. Methods of modern mathematical Physics. I. Functional analysis. Academic Press, (1972).
- M. Reed and B. Simon. Methods of modern mathematical Physics. II. Fourier analysis, selfadjointness. Academic Press, (1975).
- J. Rauch. Partial Differential Equations, Graduate Texts in Mathematics, 128. Springer-Verlag, New York, 1991. x+263 pp.

Evaluation

- 3 exams 90% of the final grade.
- Homework lists of exercises 10% final grade.

Exams Schedule

- Exam 1. April 15th, 2021.
- Exam 2. May 20th, 2021.
- Exam 3. June 29th, 2021.

The exams will be **on-line on class time**.

The homework lists should be returned on the deadline and send to the monitor Ricardo Freire at

e-mail: rickgames88@gmail.com.

After the deadline the homework will not be received by the monitor.