TOPICS IN PARTIAL DIFFERENTIAL EQUATIONS

Fall 2018; Instructor: Janek Wehr

The course will focus on nonlinear partial differential equations, including reaction-diffusion equations, gradient flows and nonlinear wave equations. We are going to use several techniques of contemporary PDE theory, such as nonlinear semigroups, fixed point theorems and variational methods. I am planning to select topics from later chapters of Evans's textbook[1] and, possibly use Lieberman's book on parabolic equations[2]. Only basic knowledge of partial differential equations will be assumed; in particular, all nonlinear techniques and concepts will be introduced as necessary.

Please let me know if you have any questions.

Janek Wehr

[1]Lawrence C. Evans: Partial Differential Equations (2nd edition), American Mathematical Society 2010.

[2]Lieberman, G.M.: Second Order Parabolic Partial Differential Equations, World Scientific 1996.