

**Stochastic Galerkin Methods for Partial Differential Equations,  
5.0 hp**

Stochastic Galerkin Methods for Partial Differential Equations, 5.0  
credits

Forskarutbildningskurs

MAI0129

Matematiska institutionen

Gäller från: Första halvår 2023

**Fastställd av**  
Prefekt

**Fastställdedatum**

**Diarienummer**

## Kursinnehåll

Basic Concepts

Introduction

Representation of random fields via spectral expansions:

PDE Theory

## Betygsskala

Engradig skala

## Kurslitteratur

GX08: Gottlieb, Xiu, Galerkin Method for Wave Equations with Uncertain Coefficients, *Commun. Comput. Phys.*, Vol. 3, No. 2, pp. 505-518, 2008.

PIN15: Pettersson, Iaccarino, Nordström, *Polynomial Chaos Methods for Hyperbolic Partial Differential Equations*, Springer, 2015.

TPME11: Tuminaro, Phipps, Miller, Elman, Assessment of Collocation and Galerkin Approaches to Linear Diffusion Equations with Random Data, *International Journal for Uncertainty Quantification*, Vol. 1, No. 1, pp. 19-33, 2011.

XK02: Xiu, Karniadakis, Modeling uncertainty in steady state diffusion problems via generalized polynomial chaos, *CMAME*, Vol. 191, pp. 49274948, 2002.