



University of Pretoria Yearbook 2017

Partial differential equations of mathematical physics 776 (WTW 776)

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| Qualification | Postgraduate |
| Faculty | Faculty of Natural and Agricultural Sciences |
| Module credits | 15.00 |
| Programmes | BScHons Applied Mathematics BScHons Mathematics BScHons Mathematics of Finance |
| Prerequisites | WTW 710 or WTW 735 |
| Contact time | 2 lectures per week |
| Language of tuition | Module is presented in English |
| Academic organisation | Mathematics and Applied Maths |
| Period of presentation | Semester 2 |

Module content

Field-theoretic and material models of mathematical physics. The Friedrichs-Sobolev spaces. Energy methods and Hilbert spaces, weak solutions – existence and uniqueness. Separation of variables, Laplace transform, eigenvalue problems and eigenfunction expansions. The regularity theorems for elliptic forms (without proofs) and their applications. Weak solutions for the heat/diffusion and related equations.

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