

# University of Pretoria Yearbook 2016

## Geometrical and space geodesy 310 (GMC 310)

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| <b>Qualification</b>          | Undergraduate   |
| <b>Faculty</b>                | <a href="#">Faculty of Natural and Agricultural Sciences</a>  |
| <b>Module credits</b>         | 24.00   |
| <b>Programmes</b>             | <a href="#">BSc Chemistry</a><br><a href="#">BSc Environmental and Engineering Geology</a><br><a href="#">BSc Environmental Sciences</a><br><a href="#">BSc Geography</a><br><a href="#">BSc Geoinformatics</a><br><a href="#">BSc Meteorology</a><br><a href="#">BSc Physics</a> |
| <b>Prerequisites</b>          | GMC110 and WTW114/WTW 134   |
| <b>Contact time</b>           | 2 lectures per week, 1 practical per week   |
| <b>Language of tuition</b>    | Double Medium   |
| <b>Academic organisation</b>  | Geography, Geoinf + Meteor  |
| <b>Period of presentation</b> | Semester 1  |

### Module content

Spherical trigonometry. Geometrical Geodesy: Datum surfaces and coordinate systems in Geodesy, Calculations on the ellipsoid, Datum transformations. Map projections: Projection principles, distortion determination, construction of conformal, equivalent and equidistant projections, the Transverse Mercator projection and UTM projection of an ellipsoidal earth, projection transformations. Space Geodesy: Time systems, Celestial and observer coordinate systems, Global Navigation Satellite Systems (GNSS), Satellite orbits and orbital parameters, 3-D positioning.

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