



Faculty of Engineering

School of Minerals and Energy Resources Engineering

Postgraduate Course Outline

PTRL5021

Reservoir Characterisation

Prof Christoph Arns

1. INFORMATION ABOUT THE COURSE

Course Code:	PTRL5021	Term:	T2, 2020	Level:	PG	Units/Credits	6 UOC
Course Name:	Reservoir Characterisation						

Course Convenor:	<i>Prof Christoph Arns</i>						
Contact Details	School of Minerals and Energy Resources Engineering TETB 220	EMAIL:	c.arns@unsw.edu.au				
		Phone:	+61 2 9385 5658				
Contact times	This course will be delivered online in T2. Please see moodle for presentation times and requirements.						

1.1. Course Description

This course will introduce the student to the background knowledge in reservoir characterisation and modelling and guide the student in integrating extra-ordinarily sparse data spatially, across properties, and scales by application of geostatistical techniques.

Course completion requires submission of all assessment items. Failure to submit all assessment items can result in the award of an Unsatisfactory Failure (UF) grade for the Course unless special consideration has been submitted and approved. Please note, a competency hurdle of 50% is applied to the final assessment.

1.3. ~~1.3.1. Course Completion (10%) 37.49~~ ~~1.3.2. Course Completion (10%) 37.494~~ ~~1.3.3. Course Completion (10%) 37.496~~ ~~1.3.4. Course Completion (10%) 37.498~~ ~~1.3.5. Course Completion (10%) 37.500~~ ~~1.3.6. Course Completion (10%) 37.502~~ ~~1.3.7. Course Completion (10%) 37.504~~ ~~1.3.8. Course Completion (10%) 37.506~~ ~~1.3.9. Course Completion (10%) 37.508~~ ~~1.3.10. Course Completion (10%) 37.510~~ ~~1.3.11. Course Completion (10%) 37.512~~ ~~1.3.12. Course Completion (10%) 37.514~~ ~~1.3.13. Course Completion (10%) 37.516~~ ~~1.3.14. Course Completion (10%) 37.518~~ ~~1.3.15. Course Completion (10%) 37.520~~ ~~1.3.16. Course Completion (10%) 37.522~~ ~~1.3.17. Course Completion (10%) 37.524~~ ~~1.3.18. Course Completion (10%) 37.526~~ ~~1.3.19. Course Completion (10%) 37.528~~ ~~1.3.20. Course Completion (10%) 37.530~~ ~~1.3.21. Course Completion (10%) 37.532~~ ~~1.3.22. Course Completion (10%) 37.534~~ ~~1.3.23. Course Completion (10%) 37.536~~ ~~1.3.24. Course Completion (10%) 37.538~~ ~~1.3.25. Course Completion (10%) 37.540~~ ~~1.3.26. Course Completion (10%) 37.542~~ ~~1.3.27. Course Completion (10%) 37.544~~ ~~1.3.28. Course Completion (10%) 37.546~~ ~~1.3.29. Course Completion (10%) 37.548~~ ~~1.3.30. Course Completion (10%) 37.550~~ ~~1.3.31. Course Completion (10%) 37.552~~ ~~1.3.32. Course Completion (10%) 37.554~~ ~~1.3.33. Course Completion (10%) 37.556~~ ~~1.3.34. Course Completion (10%) 37.558~~ ~~1.3.35. Course Completion (10%) 37.560~~ ~~1.3.36. Course Completion (10%) 37.562~~ ~~1.3.37. Course Completion (10%) 37.564~~ ~~1.3.38. Course Completion (10%) 37.566~~ ~~1.3.39. Course Completion (10%) 37.568~~ ~~1.3.40. Course Completion (10%) 37.570~~ ~~1.3.41. Course Completion (10%) 37.572~~ ~~1.3.42. Course Completion (10%) 37.574~~ ~~1.3.43. Course Completion (10%) 37.576~~ ~~1.3.44. Course Completion (10%) 37.578~~ ~~1.3.45. Course Completion (10%) 37.580~~ ~~1.3.46. Course Completion (10%) 37.582~~ ~~1.3.47. Course Completion (10%) 37.584~~ ~~1.3.48. Course Completion (10%) 37.586~~ ~~1.3.49. Course Completion (10%) 37.588~~ ~~1.3.50. Course Completion (10%) 37.590~~ ~~1.3.51. Course Completion (10%) 37.592~~ ~~1.3.52. Course Completion (10%) 37.594~~ ~~1.3.53. Course Completion (10%) 37.596~~ ~~1.3.54. Course Completion (10%) 37.598~~ ~~1.3.55. Course Completion (10%) 37.600~~ ~~1.3.56. Course Completion (10%) 37.602~~ ~~1.3.57. Course Completion (10%) 37.604~~ ~~1.3.58. Course Completion (10%) 37.606~~ ~~1.3.59. Course Completion (10%) 37.608~~ ~~1.3.60. Course Completion (10%) 37.610~~ ~~1.3.61. Course Completion (10%) 37.612~~ ~~1.3.62. Course Completion (10%) 37.614~~ ~~1.3.63. Course Completion (10%) 37.616~~ ~~1.3.64. Course Completion (10%) 37.618~~ ~~1.3.65. Course Completion (10%) 37.620~~ ~~1.3.66. Course Completion (10%) 37.622~~ ~~1.3.67. Course Completion (10%) 37.624~~ ~~1.3.68. Course Completion (10%) 37.626~~ ~~1.3.69. Course Completion (10%) 37.628~~ ~~1.3.70. 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Course Completion (10%) 37.724~~ ~~3.2. Course Completion (10%) 37.726~~ ~~3.3. Course Completion (10%) 37.728~~ ~~3.4. Course Completion (10%) 37.730~~ ~~3.5. Course Completion (10%) 37.732~~ ~~3.6. Course Completion (10%) 37.734~~ ~~3.7. Course Completion (10%) 37.736~~ ~~3.8. Course Completion (10%) 37.738~~ ~~3.9. Course Completion (10%) 37.740~~ ~~4.0. Course Completion (10%) 37.742~~ ~~4.1. Course Completion (10%) 37.744~~ ~~4.2. Course Completion (10%) 37.746~~ ~~4.3. Course Completion (10%) 37.748~~ ~~4.4. Course Completion (10%) 37.750~~ ~~4.5. Course Completion (10%) 37.752~~ ~~4.6. Course Completion (10%) 37.754~~ ~~4.7. Course Completion (10%) 37.756~~ ~~4.8. Course Completion (10%) 37.758~~ ~~4.9. Course Completion (10%) 37.760~~ ~~5.0. Course Completion (10%) 37.762~~ ~~5.1. Course Completion (10%) 37.764~~ ~~5.2. Course Completion (10%) 37.766~~ ~~5.3. Course Completion (10%) 37.768~~ ~~5.4. Course Completion (10%) 37.770~~ ~~5.5. Course Completion (10%) 37.772~~ ~~5.6. 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Course Completion (10%) 37.824~~ ~~8.2. Course Completion (10%) 37.826~~ ~~8.3. Course Completion (10%) 37.828~~ ~~8.4. Course Completion (10%) 37.830~~ ~~8.5. Course Completion (10%) 37.832~~ ~~8.6. Course Completion (10%) 37.834~~ ~~8.7. Course Completion (10%) 37.836~~ ~~8.8. Course Completion (10%) 37.838~~ ~~8.9. Course Completion (10%) 37.840~~ ~~9.0. Course Completion (10%) 37.842~~ ~~9.1. Course Completion (10%) 37.844~~ ~~9.2. Course Completion (10%) 37.846~~ ~~9.3. Course Completion (10%) 37.848~~ ~~9.4. Course Completion (10%) 37.850~~ ~~9.5. Course Completion (10%) 37.852~~ ~~9.6. Course Completion (10%) 37.854~~ ~~9.7. Course Completion (10%) 37.856~~ ~~9.8. Course Completion (10%) 37.858~~ ~~9.9. Course Completion (10%) 37.860~~ ~~10.0. Course Completion (10%) 37.862~~ ~~10.1. Course Completion (10%) 37.864~~ ~~10.2. Course Completion (10%) 37.866~~ ~~10.3. Course Completion (10%) 37.868~~ ~~10.4. Course Completion (10%) 37.870~~ ~~10.5. Course Completion (10%) 37.872~~ ~~10.6. Course Completion (10%) 37.874~~ ~~10.7. Course Completion (10%) 37.876~~ ~~10.8. Course Completion (10%) 37.878~~ ~~10.9. Course Completion (10%) 37.880~~ ~~11.0. Course Completion (10%) 37.882~~ ~~11.1. Course Completion (10%) 37.884~~ ~~11.2. Course Completion (10%) 37.886~~ ~~11.3. Course Completion (10%) 37.888~~ ~~11.4. Course Completion (10%) 37.890~~ ~~11.5. Course Completion (10%) 37.892~~ ~~11.6. Course Completion (10%) 37.894~~ ~~11.7. Course Completion (10%) 37.896~~ ~~11.8. Course Completion (10%) 37.898~~ ~~11.9. Course Completion (10%) 37.900~~ ~~12.0. Course Completion (10%) 37.902~~ ~~12.1. Course Completion (10%) 37.904~~ ~~12.2. Course Completion (10%) 37.906~~ ~~12.3. Course Completion (10%) 37.908~~ ~~12.4. Course Completion (10%) 37.910~~ ~~12.5. Course Completion (10%) 37.912~~ ~~12.6. Course Completion (10%) 37.914~~ ~~12.7. Course Completion (10%) 37.916~~ ~~12.8. Course Completion (10%) 37.918~~ ~~12.9. Course Completion (10%) 37.920~~ ~~13.0. Course Completion (10%) 37.922~~ ~~13.1. Course Completion (10%) 37.924~~ ~~13.2. Course Completion (10%) 37.926~~ ~~13.3. Course Completion (10%) 37.928~~ ~~13.4. Course Completion (10%) 37.930~~ ~~13.5. Course Completion (10%) 37.932~~ ~~13.6. Course Completion (10%) 37.934~~ ~~13.7. Course Completion (10%) 37.936~~ ~~13.8. Course Completion (10%) 37.938~~ ~~13.9. Course Completion (10%) 37.940~~ ~~14.0. Course Completion (10%) 37.942~~ ~~14.1. Course Completion (10%) 37.944~~ ~~14.2. Course Completion (10%) 37.946~~ ~~14.3. Course Completion (10%) 37.948~~ ~~14.4. Course Completion (10%) 37.950~~ ~~14.5. Course Completion (10%) 37.952~~ ~~14.6. Course Completion (10%) 37.954~~ ~~14.7. Course Completion (10%) 37.956~~ ~~14.8. Course Completion (10%) 37.958~~ ~~14.9. Course Completion (10%) 37.960~~ ~~15.0. Course Completion (10%) 37.962~~ ~~15.1. Course Completion (10%) 37.964~~ ~~15.2. Course Completion (10%) 37.966~~ ~~15.3. Course Completion (10%) 37.968~~ ~~15.4. Course Completion (10%) 37.970~~ ~~15.5. Course Completion (10%) 37.972~~ ~~15.6. Course Completion (10%) 37.974~~ ~~15.7. Course Completion (10%) 37.976~~ ~~15.8. Course Completion (10%) 37.978~~ ~~15.9. Course Completion (10%) 37.980~~ ~~16.0. Course Completion (10%) 37.982~~ ~~16.1. Course Completion (10%) 37.984~~ ~~16.2. Course Completion (10%) 37.986~~ ~~16.3. Course Completion (10%) 37.988~~ ~~16.4. Course Completion (10%) 37.990~~ ~~16.5. Course Completion (10%) 37.992~~ ~~16.6. Course Completion (10%) 37.994~~ ~~16.7. Course Completion (10%) 37.996~~ ~~16.8. Course Completion (10%) 37.998~~ ~~16.9. Course Completion (10%) 38.000~~

1. Demonstrate knowledge and skills needed to cross-correlate petrophysical properties.
2. Design and populate continuum 3D grids for the purpose of reservoir simulation using geostatistical interpolation techniques (Kriging) and stochastic simulation.
3. Upscale simulation grids for real and categorical variables.

3. REFERENCE RESOURCES

3.1. Reference Materials

5. COURSE ASSESSMENT

5.1. Assessment Summary

Assessment task	Due date / week	Weight	Assessment	Learning outcomes assessed
1	05 June 12 June 19 June 26 June 03 July 10 July 17 July	10%	Quiz 1 – 7 Individual online quizzes to reflect on lecture material - infinite repetition allowed minimum pass mark 75	1, 2, 3
2	03 July	10%	Individual assignment Application of basic techniques	1, 2, 3 o0 11.04 521.0

6. ASSESSMENT CRITERIA

The assessment criteria provides a framework for you to assess your own work before formally submitting major assignments to your course convenor. Your course convenor will be using this framework to assess your work and as a way to assess whether you have met the listed learning outcomes and the graduate attributes for your program. We ask that you don't use the assessment criteria guidelines as a checklist, but as a tool to assess the quality of your work. Your course convenor will also

7.4. Accessing Course Materials Through Moodle

Course outlines, support materials are uploaded to Moodle, the university standard Learning Management System (LMS). In addition, on-line assignment submissions are made using the assignment dropbox facility provided in Moodle. All enrolled students are automatically included in Moodle for each course. To access these documents and other course resources, please visit: www.moodle.telt.unsw.edu.au

7.5. Assignment Submissions

The School has developed a guideline to help you when submitting a course assignment.

We encourage you to retain a copy of every assignment submitted for assessment for your own record either in hardcopy or electronic form.

All assessments must have an assessment cover sheet attached.

7.6. Late Submission of an Assignment

Full marks for an assignment are only possible when an assignment is received by the due date.

We understand that at times you may not be able to submit an assignment on time, and the School will accommodate any fair and reasonable extension. We would recommend you review the UNSW Special Consideration guidelines – see following section.

Late submission will not be accepted and will be considered as no submission.

7.7. Special Consideration

You can apply for special consideration through [The Nucleus Student Hub](#) when illness or other circumstances interfere with your assessment performance. Sickness, misadventure or other circumstances beyond your control may:

-

available for you to complete.

We also encourage all students to share any feedback they have any time during the course – if you have a concern, please contact us immediately.

8. SCHOOL ASSESSMENT COVER SHEET

Course Convenor: _____
Course Code: _____ Course Title: _____