

# TABLE OF CONTENTS

1. PREFACE | p.11
2. A Biological Understanding of Architecture | p.15  
*Extract from an essay in Katarxis No. 3, September 2004.*

## PART ONE

### THE COURSE LECTURES AND READINGS

3. INTRODUCTION TO THE COURSE | p.18
4. LECTURE NOTES FIRST WEEK | p.21  
The Structure of Architectural Theories
5. Architectural Theory | p.26  
*Extracts from Anti-Architecture and Deconstruction (Umbau-Verlag, Solingen, 2008)*
6. Integrated Science and the Coming Century of the Environment  
| p.34  
*Edward O. Wilson, Science, Volume 279, No. 5359 (27 March 1998), pages 2048-2049*
7. LECTURE NOTES SECOND WEEK | p.40  
Form Languages and their vocabulary
8. LECTURE NOTES THIRD WEEK | p.45  
Complexity and Form Languages. Ecophobia
9. Kolmogorov-Chaitin Complexity | p.51  
*Meandering Through Mathematics, 23 September 2012*
10. Against Ecophobia | p.56  
*Nikos A. Salingaros & Kenneth G. Masden, Philadelphia Society, 8 October 2011.*

11. LECTURE NOTES FOURTH WEEK | p.63  
Degree of complexity measures a form language's adaptivity
12. Building Civil Cities | p.68  
*Léon Krier, Traditional Building, 2005*
13. Politics, Philosophy, Critical Theory | p.75  
*Nikos A. Salingaros & Kenneth G. Masden, Philadelphia Society, 8 October 2011*
14. LECTURE NOTES FIFTH WEEK | p.81  
Human physiology and evidence-based design
15. Evidence-Based Design | p.86  
*Michael W. Mehaffy & Nikos A. Salingaros, Metropolis, 14 November 2011*
16. LECTURE NOTES SIXTH WEEK | p.93  
Biophilia: our evolved kinship to biological forms
17. Biophilia | p.99  
*Michael W. Mehaffy & Nikos A. Salingaros, Metropolis, 29 November 2011*
18. Extract from "Neuroscience, the Natural Environment, and Building Design" | p.106  
*Nikos A. Salingaros & Kenneth G. Masden, Chapter 5 of Biophilic Design: the Theory, Science and Practice of Bringing Buildings to Life, edited by Stephen R. Kellert, Judith Heerwagen, and Martin Mador (John Wiley, New York, 2008)*
19. LECTURE NOTES SEVENTH WEEK | p.125  
Alexander's 15 Fundamental Properties
20. LECTURE NOTES EIGHTH WEEK | p.131  
Fractals and hierarchical scaling
21. LECTURE NOTES NINTH WEEK | p.136  
Organized complexity and a model that estimates life in architecture
22. LECTURE NOTES TENTH WEEK | p.142  
Wholeness and geometrical coherence

23. The Transformation of Wholes | p.147  
*Michael W. Mehaffy & Nikos A. Salingaros, Metropolis, 13 April 2012*
24. LECTURE NOTES ELEVENTH WEEK | p.156  
Recursion and stress reduction through fractals
25. Scaling and Fractals | p.161  
*Michael W. Mehaffy & Nikos A. Salingaros, Metropolis, 28 May 2012*
26. Fractal Art and Architecture Reduce Physiological Stress | p.170  
*JBU — Journal of Biourbanism, No. 3, March 2013*
27. LECTURE NOTES TWELFTH WEEK | p.191  
Ornament and human intelligence
28. Intelligence and the Information Environment | p.196  
*Michael W. Mehaffy & Nikos A. Salingaros, Metropolis, 25 February 2012*
29. LECTURE NOTES THIRTEENTH WEEK | p.203  
Architecture itself as a biological system
30. Complex Adaptive Systems | p.208  
*Michael W. Mehaffy & Nikos A. Salingaros, Metropolis, 6 August 2012*
31. Architecture: Biological Form and Artificial Intelligence | p.217  
*Nikos A. Salingaros & Kenneth G. Masden, The Structurist, No. 45/46 (2006), pages 54-61*
32. LECTURE NOTES FOURTEENTH WEEK | p.231  
Natural and unnatural form languages
33. The 1982 Alexander-Eisenman Debate | p.236  
*Christopher Alexander & Peter Eisenman, Kataraxis No. 3, September 2004*
34. Some Sober Reflections on the Nature of Architecture in Our Time | p.250  
*Christopher Alexander, Kataraxis No. 3, September 2004*

35. CONCLUSION | p.261

## **PART TWO**

### **COURSE ORGANIZATION AND PROJECTS**

36. Discovering Theory from Measurements | p.264

37. First Class Project | p.267

*Documenting a form language and estimating its complexity. The Kolmogorov-Chaitin complexity of each form language correlates to an estimate of its regional adaptation*

38. Form Language Checklist | p.269

39. Architectural Regionalism Correlates with Design Complexity  
| p.271

*The results of plotting all the class projects together indicate a direct correlation between regionalism and the complexity of the form language used*

40. Second Class Project | p.274

*Evaluation and classification of form languages according to their geographical and human adaptations*

41. Quantitative Measures for Regionalism and Complexity | p.276

*Numerical estimates according to their regional/global and natural/unnatural characteristics provide a more sophisticated model that correlates regionalism with design complexity*

42. Notes for students on the framework of this course | p.281

43. COURSE SYLLABUS | p.284

44. POSTSCRIPT | p.288

Letter from Zaheer Allam

INDEX | p.291