

Comments on 18.112 in Open Course Ware

Having used Ahlfors' book several times I have generally stuck to it. However, there are many alternatives. Since 18.112 is now an undergraduate course and Ahlfors book is a graduate text I felt a substantial change was necessary. So my Open Course Ware Notes have made these changes.

Lecture 1 Here I added the result that the stereographic projection is conformal. Partly because the result is interesting and partly because this is assumed in a later problem (exercise 5 page 88).

Lecture 2 In addition to introducing \exp mapping I introduced the usual Log because 'Theorem 3 is useful later.'

Lecture 3 A minor generalization of Lucas' theorem, p. 29.

Since 18.100B is a prerequisite I omitted all point set topology. For reasons of time I also omitted pp. 93 - 99. I also omitted anything about chains, cycles and homology basis. In fact I replaced pages 137 - 148 by a much simpler proof by Dixon in Lecture 13.

Lecture 6 -7. Discussion of some problems in the text

Lecture 8 Theorem 1 would have been natural to include in the text.

Lecture 11 Simplified proof of Theorem 9

Lecture 12 Extensions about the hyperbolic plane

Lecture 13 This replaces pp 137 -147 by Dixon's much simpler proof.

Lecture 14 Here is a correction of a minor gap in the proof of Rouché's theorem.

Lecture 15 Here is an extended discussion of examples 4 and 5

Lecture 16 The text treatment of harmonic function seems quite unsuitable for students having only taken 18.100B. I adopted a completely different treatment, including a simple geometric proof of the Poisson formula and the Schwarz theorem..

Lecture 18. Considering time constraints I adopted a shorter treatment of the Gamma function.

Lecture 19 This short treatment replaces pages 219 – 227 in the text.. As mentioned the proof on page 223 has an easily correctable error.

Lectures 21-22. Sometimes (but not always) I have been able to contain this material

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