

# CHEN 3650 SP12 - Course Project

## Cooling Coffee

Prof. W. R. Ashurst

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# 1 Introduction

You are a chief barista at Strahlhouse Kaffe, and your corporate headquarters has had a number of customers complain about the cooling rate of your coffee. Not having time to investigate the cooling rates yourself, you contract a project with a local expert, Prof. Apfel von Krapp of the Deutsch Fachhochschule in Karlsruhe. Your contract is to have Prof. von Krapp prepare a model for cooling coffee using first principles and no adjustable parameters, and validate that model with experimental data that he collects in his lab. Prof. von Krapp is not allowed to use any “fitting” in his model, only equations derived from first principles, established constitutive relationships and published (i.e., cite-able) information. All equations, parameters and constants he uses must be cited or directly measured.

You are now in receipt of the final report prepared by Prof. von Krapp. It is now your job to critically evaluate the strengths and weaknesses of von Krapp’s model. You are to forward von Krapp’s report along with your analysis to headquarters for consideration on policy change. You may assume that von Krapp’s constants have been verified.

# 2 Grading Information

This project consists of a critical analysis and technical writing. In order to provide you with feedback before the final report is due, one optional draft report is due. You may elect not to take advantage of this draft report. Your project grade will be based on the technical quality of your report as well as the technical writing. The technical quality will be judged based on your analysis of the model, and your application of engineering judgment. Technical writing quality will be judged by readability, clarity, precision and content. Your report should be sufficiently detailed that these elements may be assessed by a person “of ordinary skill in the art” but not directly familiar with your effort. The focus of your critique should not be on the experiment – assume that Prof. von Krapp’s experimental setup is a valid representation of the situation from your customer complaints.

	Contribution to Project Grade	Due Date
Draft Report	0%	03/21/12
Final Report	100%	04/18/12