

UNIVERSITY ENROLMENT  
PLANNING

by

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## TABLE OF CONTENTS

Summary	(iv)
Signed Statement	(vi)
Acknowledgements	(vii)
<i>Chapter 1.</i> The background to university enrolment planning	
1.1 Introduction	1
1.2 The non-growth phase	5
1.3 Models of retention-rate characteristics	8
1.4 A forecasting method in use at the University of Adelaide	22
1.5 Estimation of lifetimes in Ph.D.-degree course	25
1.6 Conclusions	38
<i>Chapter 2.</i> The single-course, single-grade case	
2.1 Introduction	40
2.2 Formulation of the model	41
2.3 An optimal solution of the linear programme	45
2.4 Some other objective functions	51
2.5 Solving the linear programme	55
2.6 The programme with integrality constraints	60
2.7 The B.Sc.-degree course at the University of Adelaide	63
2.8 Summary	69

<i>Chapter 3.</i>	Extensions of the basic model	
3.1	Introduction	72
3.2	Retention rates not non-increasing	73
3.3	The single-course, multi-grade case	77
3.4	The multi-course, single-grade case	88
3.5	Conclusion	93
<i>Chapter 4.</i>	Discussion	
4.1	Applicability of the results	95
4.2	The non-growth period and moving towards it	97
4.3	Possibilities for further work	99
References		101

## SUMMARY

At the University of Adelaide, the total number of students enrolled in any course is controlled by quotas on the number of new entrants to the course each year. A linear relationship is used to forecast total enrolment given the number of new students in each previous year; for future years, the number of new students is taken to be the size of the quota.

Chapter 1 relates the methods in use at the University of Adelaide to the work of other authors and demonstrates how a Markov model may be used to obtain the lifetimes of students in a particular course, namely the Ph.D.-degree course. Chapter 2 then develops a linear programming model which mimicks the forecasting method already in use and which determines the intake quotas over a period of years that use as much as possible of the course capacity while satisfying certain constraints. These constraints ensure that the total enrolment each year is no greater than the capacity in that year and that the intakes are non-decreasing and no greater than some maximum value. In particular, the programme is designed to be used to determine strategies which move the course into a constant enrolment, or non-growth, period while accounting for restrictions on the permissible rate of growth. It is shown that the special structure of the problem may be exploited to find a particular solution which is optimal for several, commonly encountered objective functions. The requirement that the intakes should be integral is discussed and is shown to pose very little additional difficulty. An example from the University of Adelaide is used to illustrate the methods.

Chapter 3 considers extensions of the basic model (the single-grade, single-course case) to situations where there are several

grades within a course with capacities on some of these grades or where several inter-related courses are to be planned at the same time. Finally, chapter 4 contains a discussion of the applicability of the work of the thesis and suggests possibilities for further extensions.

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