

PROCEEDINGS
of the
Research Experiences for Undergraduates
Program in Mathematics

Oregon State University
Summer 1999

Dennis J. Garity, Director

This volume contains the Proceedings of the Research Experiences for Undergraduates Program held at the Mathematics Department of Oregon State University during the summer of 1999. This program was funded by the National Science Foundation and by Oregon State University. The Provost's Office, the Research Office, The College of Engineering, The College of Science, and the Mathematics Department provided the funding from Oregon State University. Dennis J. Garity of the Mathematics Department directed the program. Donald Solmon and Juha Pohjanpelto of the Mathematics Department and Paul Cull of the Computer Science were the faculty advisors on the research projects undertaken by the student participants. There were ten undergraduate participants in the program. The papers summarizing the research projects are listed below. The participants were:

Danielle Arett.....	Augsburg College	Kimberly Moerman	Arizona State University
Elizabeth Birchall	Reed College	Ben Schmidt	Emory University
Jason Durham	Oregon State University	Jason Tedor	University of Alaska Fairbanks
Sarah Gulde	Oregon State University	Jenny Weisenberg.....	Barnard College
Michael Lauzon	Harvey Mudd College	Patrick Yaner	North Carolina State University

Table of Contents

Danielle Arett	(Advisor: Paul Cull)	
<i>Coding Theory on the Generalized Towers of Hanoi</i>		1
Elizabeth Birchall and Jason Tedor	(Advisor: Paul Cull)	
<i>Perfect One Error Correcting Codes on Iterated Complete Graphs</i>		13
Jason Durham	(Advisor: Juha Pohjanpelto)	
<i>Irreducible Plane Curves</i>		35
Sarah Gulde	(Advisor: Juha Pohjanpelto)	
<i>Classification of Plane Curves</i>		54
Mike Lauzon and Ben Schmidt	(Advisor: Donald Solmon)	
<i>Tomography of Non-convex Polygons from a Single Point X-ray</i>		77
Kimberly Moerman and Jenny Weisenberg	(Advisor: Juha Pohjanpelto)	
<i>Symmetry Reduction of Maxwell's Equations: A Case Study</i>		100
Patrick Yaner	(Advisor: Paul Cull)	
<i>Expected Cycle Length in Rendom Boolean Networks of Connectivity 2</i>		121