
Ordinary Differential Equations

Stephen Salaff and Shing-Tung Yau

Second Edition



International Press

Copyright: 1998 by International Press Incorporated

All rights are reserved. No part of this work can be reproduced in any form, electronic or mechanical, recording, or by any information storage and data retrieval system, without specific authorization from the publisher. Reproduction for classroom or personal use will, in most cases, be granted without charge.

ISBN #: 1-57146-065-9

Typeset using LaTeX

Printed on acid-free paper, in the United States of America.

Preface

These notes emerged from the lecture course in differential equations given by the authors at Chung Chi College, Chinese University of Hong Kong. They have proven helpful in similar courses since that time. This new edition will make this material available to a larger audience for the first time.

We wish to thank the members of the Chung Chi College course for their active cooperation in the preparation of these notes; and we urge students in future courses, for whom this work is intended, to contribute their comments and criticism through the publisher, International Press.

We are indebted, in particular, to Fong Che Kao for his work on Chapters 6 through 8, and to Choi Man Duen, who edited the problems.

The authors
Chung Chi College
September 8, 1968

Table of Contents

Preface.....	iii
Existence, uniqueness, and continuous dependence	1
Continuation of solutions.....	14
The linear equation.....	17
Power series solutions.....	27
Linear systems with constant coefficients.....	34
Autonomous systems.....	45
Limit cycles, I.....	58
Limit cycles, II.....	66