



UNIVERSITY *of*  
ROCHESTER

## Manual for PhD Students

### Formatting the Thesis and Preparing for Final Defense

Prepared by the Office of the University Dean of Graduate Studies  
259-260 Wallis Hall  
585.275.9093  
November 2016

**Note:** This manual reflects required formatting for the PhD thesis. Other graduate programs requiring theses or final written projects (EdD, DMA, DNP, some masters degrees) may or may not use the format described here. Students in these graduate programs should consult program administrators.

## **Table of Contents**

Introduction	1
The PhD Thesis Registration Process	1
Formatting Your Thesis	3
The Order of Thesis Contents	4
Plan Ahead for a Smooth Defense	8
Preparing for Dissertation Submission to ProQuest®/UMI	8

## **Examples**

Format of Title Page	9
Table of Contents	10
Biographical Sketch	12
Contributors and Funding Sources	13
List of Tables	14

## Introduction

Preparation of a thesis is one of the most important parts of your work leading to a doctoral degree. This manual is meant to help you meet the required standard of organization, appearance and format for theses at the University of Rochester. Although your PhD program is offered by a given school, it is the University that grants the PhD degree. Therefore, all final dissertations must adhere to the same criteria.

At the University of Rochester, the PhD thesis is expected to be an original work by the student, formulated in a scholarly manner and with content of a quality consistent with respected publications in your field. Your thesis will become a publically available document that may serve as a reference for many years.

Many guidebooks and style manuals are available for dissertation writers. Consult with your school or department regarding preferred styles and writing guides for your field. Regardless of reference format and other stylistic differences, the basic formatting stipulations of this manual apply.

The registered version of your thesis to be used at the defense is not a draft. Although the examining committee may require revisions after the defense, the thesis that is uploaded to the PhD completion website for registration for the final defense should be in final form. The associate dean, University Dean or appointed oral examination chair may turn back any thesis that is insufficiently edited or carelessly formatted, and the defense will be postponed. It is in your best interest to produce a polished, carefully edited and well-written document for evaluation by the dissertation defense committee and chair.

### The PhD Thesis Registration Process and PhD Completion Website

PhD degrees are conferred by the Board of Trustees five times each year: August, October, December, March and May. After a successful defense, there are further steps to completion of the final requirements, and all must be completed by a date approximately a month before these degree conferral dates. There may be deadlines for registering your thesis specific to your school. Consult with your program's graduate coordinator to ascertain those deadlines and follow them carefully in tandem with the University Graduate Studies PhD calendar.

See the rules governing the creation of your defense committee at:

<https://www.rochester.edu/GradBulletin/PDFbulletin/Regulations.pdf>. These rules also include the selection of a chair for your defense.

You are responsible for providing a copy of your thesis, identical to the registration copy, to each member of your defense committee at least two weeks before they are asked to approve it electronically for progression to final defense. Some will accept a pdf, and others will choose a hard copy. If any of your committee members requests a paper copy of the thesis, it may be printed either single-sided or in duplex (back-to-back). It must be printed clearly on good-quality paper and securely bound in some manner unless the committee member requests otherwise. Do not use three-ring binders because pages can easily tear out.

Once the thesis is in the hands of the committee and your advisor indicates you may plan for a defense, you, your program's graduate coordinator, or both of you together will create your record in the University of Rochester Graduate Studies PhD Completion website. This record will include your degree information, past degrees, important contact information, and attachments, including the defense version of your thesis in pdf format, and other relevant documents provided by your graduate coordinator. The version of your thesis attached to your online record is considered the registration version. When the PhD Completion record is

finalized by the graduate coordinator, committee members will immediately receive emails to approve your thesis to progress to defense, so be sure all members have received the dissertation at least 2 weeks before the online record is finalized.

You are also required to provide a copy of the registered version of the thesis to the chair of your oral defense in his/her preferred format. The chair does not comment or sign off on the thesis during the thesis registration process but should have it at least two weeks prior to the defense.

After all committee members have given online approval, the registration moves on to the faculty director of your PhD program for their approval using the same online system. Following that, requests for review and approval will go to the graduate studies office staff of your school and then to the graduate dean of your school. Finally, it goes to the staff of the University Dean of Graduate Studies and, last, to the University Dean of Graduate Studies. You will be able to track these approvals in your online record and will receive a confirmation email when approvals are complete. When all of these officials have approved your committee and thesis for defense, it is considered registered.

Staff in your school and in the University Graduate Studies office may make corrections to the pdf of your thesis as it goes through the approval process. All annotated copies of the thesis, along with the original version, will be stored in the PhD Completion website for you to refer to as you make final changes after your defense. You are not permitted to distribute updated versions to the committee prior to the defense, because faculty may have made notes on the version they received, and all members should be using exactly the same document during the defense discussion. However, you may make changes to a personal version that you do not share, including the formatting corrections requested by University Graduate Studies, to reduce the work you will need to do after the defense. The committee or chair may request additional changes, which should also be incorporated in the final version.

After the defense, if the committee has required major revisions to be approved by one or more of its members, it is your responsibility to provide the corrected final version for their approval. They will be asked to submit written confirmation of that approval on a form that is distributed by, and returned to, the University Graduate Studies office. Failure to do so could delay conferral of your degree.

The day after the defense, you will receive instructions by email for completion of all remaining PhD degree requirements. This includes uploading the final dissertation to ProQuest, the submission of the UR Research Authorization form, and completion of two on-line surveys. After the defense, it is important to incorporate all requested corrections before uploading the dissertation to ProQuest®.

To see the formatting corrections required for your thesis, retrieve the version attached to your record on the PhD Completion website with 'UGS' in the title. All corrections noted there must be included in the final copy, along with any additions or corrections identified by your committee.

The University Graduate Studies office utilizes the pdf comment feature to annotate the dissertation. The easiest way to see all of the corrections is to open the pdf, save it to your desktop, open that copy and click 'Comment' in the upper right corner. (If there is no Comment button, open the Tools menu and find it there.) That will bring up a list of all of the required corrections. Click on each listed comment, and its location will light up in the text. Pay special attention to small insertion marks, which generally indicate a spelling or punctuation error. If you see something crossed out in blue, there is also a comment regarding spelling, grammar, etc. Don't assume you should simply remove text that is crossed off in blue.

If you are unfamiliar with how that works, or have any questions about preparing your final copy, you may contact Deb Randle at [deborah.randle@rochester.edu](mailto:deborah.randle@rochester.edu) or phone 585.275.9093

## Formatting your Thesis

The thesis will be returned to you if you do not adhere to the following guidelines. Therefore, you are encouraged to pay close attention to what is required as you prepare your thesis for your defense and beyond.

### Language and General Rules of English

Your thesis must be written in English, except where the subject matter demands otherwise and an exception has been approved by the school's dean for graduate studies and the University Dean of Graduate Studies.

General rules of English should be followed, including:

1. Capitalize the first and last words of the title and all nouns, pronouns, adjectives, verbs, adverbs and subordinate conjunctions therein;
2. Use lower case for articles, coordinate conjunctions and prepositions (unless they are the first or last words of the title);
3. For hyphenated words in titles, always capitalize the first element. Capitalize the second element if it is a noun or proper adjective or if it has equal force with the first element (e.g. Twentieth-Century Literature);
4. Use the simplest possible scientific words or terms that are recognizable to those in your field. The title of your thesis will be accessed by search engines based on the words it contains. Lay persons within the University also will receive listings that include your thesis title. Avoid abbreviations, esoteric terms and jargon;
5. Specific rules apply to capitalization of non-English words including Latin words such as genus and species. Please refer to guidelines of your specialty for proper expression.

### Page and Document Formatting

The narrative of the thesis should be formatted for 8.5 x 11-inch paper in portrait format (text running across the shorter dimension of the page).

All margins must be at least 1.25" (one and one-quarter inches), including those on tables, figures, and appendices. Tables or figures may be printed in landscape layout (content running across the longer dimension of the page) if necessary. See page number section for numbering on those pages.

Page headers in the top margin may be used, but footers in the bottom margin should not be used. The header font should match the font used in the text. Headers should be short enough to accommodate page numbering.

Font size must be at least as large as 10-point Arial or 12-point Times New Roman. Fonts in figures and tables may be smaller than 11-point, but all must remain legible when reduced to 50% size. Because ProQuest®/UMI produces printed half-size bound dissertations, it is important to follow the font size as stated above. Color figures or plates may be included but should be interpretable in black and white if duplicated as such by ProQuest®/UMI.

The front matter (abstract, biographical sketch, dedication, contributors and funding sources, table of contents, etc.) and body of the text must be double-spaced.

Long quotations set apart in paragraphs, figure captions, tables, figures and lists in appendices may be single-spaced. The bibliography or reference list may be single-spaced.

### **Page Numbering**

After the title page, each page in the thesis, including pages with tables, figures, references and appendices, must include a page number.

The front matter (all pages preceding the first page of Chapter 1), including the title page, is numbered using lower-case Roman numerals (ii, iii, iv, etc.) The title page is considered page “i” but is the only page that does not include a number on the page.

The first page of Chapter 1 is page 1. All pages that follow, including the narrative, any figures or tables, bibliography and appendices, are numbered consecutively in Arabic numerals. Do not renumber from the start of each chapter. Page numbers must be placed in the top margin of each page, preferably at the top right. They may be placed outside of the required margins (between the required margin and the page edge) but should be at least  $\frac{3}{4}$  inch from the edges of the page.

If you are including any landscape-oriented pages, number all your pages in the upper right corner rather than centered at the top of the page, because at least half the time, the numbers will be in the correct position to appear in the upper outside corner when the thesis is printed double-sided. When the landscape page appears on the left side (back of a page) with the top of the image to the left, the page number will be correctly located on the upper right (usual position when numbering is automatic). However, when the landscape page appears on the right side with the top of the image toward the binding, the page number will need to be at the bottom right of the landscape page in order to appear on the upper right when the document is bound. In this case, the automatically printed page number can remain, but it should be supplemented by a second page number added as a text box at the bottom right. The numbers on landscape pages may face sideways, as long as they are positioned correctly on the page.

### **Placement of Tables and Figures in the Text**

Each table and figure must have a unique number and title and must appear on a numbered page, either alone or on a page with text. Table and figure titles must be identical in the table of contents list and the text. If it is necessary to have the legend on a separate page, it must carry its own page number.

### **The Order of Thesis Contents**

The thesis must include the following components in the following order. Optional pages are noted. Instructions follow on format and content of several of these sections. Each heading in your front matter must be the same font/size/placement. This includes the Table of Contents, List of Tables, List of Figures, etc.

The page numbering scheme is provided as an example, but numbering should be adjusted based on the components included and the number of pages of each. Page numbers on all front matter are lower case Roman numerals. Title page is page i but is not numbered. Page numbers on thesis content are Arabic numbers. Chapter 1 is page 1 and is numbered.

<b>Content Order</b>	<b>Sample Page Numbering</b>
<b>Title page</b>	i
Counted as first page but not numbered	
Do not include in Table of Contents	
<b>Dedication (optional)</b>	ii
Do not include in Table of Contents	
<b>Table of Contents</b>	iii
Include front matter listed below followed by entries for text of thesis	
Do not include an entry for the Table of Contents in the Table of Contents	
<b>Biographical Sketch</b>	iv
<b>Acknowledgements (optional)</b>	v
<b>Abstract</b>	vi
<b>Contributors and Funding Sources</b>	vii
<b>List of Tables (when applicable)</b>	viii
<b>List of Figures (when applicable)</b>	ix
<b>List of Schemes (when applicable)</b>	x
<b>List of Symbols (when applicable)</b>	xi
<b>Chapter 1 (numbered)</b>	1
<b>Remaining Chapters</b>	2, 3, etc.
<b>Summary or Conclusion (may be a section in the final chapter)</b>	4
<b>Bibliography or References</b>	5
<b>Appendices (when applicable)</b>	6

## **Title Page**

The title of the thesis is typed in upper and lower case letters. Do not use all upper case letters. This is to insure that the words (such as proper names) within the title are capitalized correctly when listed elsewhere.

Do not include degrees or credentials of your advisor(s) and do not list other members of your committee. Committee members are listed in the Contributors and Funding Sources page. Include the word 'Professor' in front of the name of each advisor on the title page.

The name of your department and school appear on the title page. If you are in an interdisciplinary program, list the program name rather than a department, followed by the school(s).

Provide the year (but not the month or day) of your expected degree conferral. The degree conferral may, or may not, be the same year as the defense. Please refer to the PhD calendar for completion dates required for each of the five conferral dates through the year.

## **Dedication (optional)**

This is a single statement on its own page following the title page indicating an individual or group whom you wish to honor by the production of this work. If you include a dedication, it will be numbered as page ii. Acknowledgments are different; see below.

## Table of Contents

The table of contents needs to include entries for all of the front matter except for the title page and table of contents page. Also include, as part of the front matter, entries for your List of Tables, List of Figures, etc. (if applicable). Following those entries, indicate the title and page numbers of the main divisions or chapters and the major subdivisions or subheading levels. The numbering and wording used in the Table of Contents **must match the numbering and wording of the titles and headings in the front matter and text**. See above for correct page numbering.

You need not include every level of subheading, but if you include any listings from a certain level, you must include all from that level. Levels can be indicated in the table of contents by indenting, numbering or both.

The bibliography and any appendices must be listed with their starting page numbers.

## Biographical Sketch (not to be called Curriculum Vitae)

In one to three paragraphs, provide some basic facts about your scholarly life and career, without including personal data such as birthdate. These include the colleges and universities attended, the major fields of study at each, and the degrees and academic honors awarded. If you have relevant professional experience such as employment in your career field, you may describe it briefly. Follow this with a description of your work at the University of Rochester, including dates of residence, graduate programs pursued, name(s) of advisor(s), and all university appointments (e.g. fellowships, scholarships, research and teaching assistantships or traineeships). Do not include a complete scientific curriculum vitae or professional resume. Do not include future plans or employment.

Follow this narrative with a reference list of all works published or in review for publication during your time at the University, including content or results from the dissertation that have been published in full or in part. This listing may include publications mentioned on the Contributors and Funding Sources page. See that section below on including previously published articles as chapters in the dissertation.

## Acknowledgments (optional)

Acknowledgments are a statement of appreciation from you to others such as mentors, advisors, colleagues, friends and family, for their support during your doctoral study. Recognition of colleagues' or mentors' direct contributions to this work and of awards or funding sources that provided support for the work will appear in a subsequent section on Contributors and Funding Sources.

## Abstract

The abstract should present a brief summary of the thesis indicating the purpose, the procedures or methods used, the results or product that was produced, and the conclusions you reached. The abstract should be written very carefully and proofread by your advisor because it will be distributed worldwide by ProQuest®/UMI in the electronic database "Dissertation Abstracts International." In print indexes, the abstract will be truncated at 350 words, so you may wish to use this as a length limit. Electronic listings will include the full abstract regardless of length.

## Contributors and Funding Sources

In this section, name all members of the dissertation committee. Then, any collaboration with others in carrying out your dissertation research or in publications reflecting that research must be clearly described, and your independent contributions must be made clear. The sources of financial support for your research



must be listed. If you completed all the work independently without outside funding support, indicate this here as well.

You may include as chapters or sections in the dissertation your own work that has been previously published elsewhere, as long as that publisher's copyright permits, and as long as your contribution to multi-authored work is made clear in this section. The dissertation will not be approved if any content is subject to governmental or other restrictions that limit freedom of publication.

### **List of Tables (when applicable)**

If tables are included, all tables, whether on separate pages or included in pages of text, must be numbered and listed. Tables must be numbered uniquely and consecutively from beginning to end of the thesis. **Table titles listed must be identical to the titles used within the body of the work.**

### **List of Figures, List of Schemes and/or List of Symbols (when applicable)**

If photographs, maps, diagrams, graphs or drawings are included, a list with numbers, titles, and thesis page numbers must be included. If more than one category of illustration is used, provide an individual List of Figures, an individual List of Schemes and an individual List of Symbols, etc., each starting on a new page.

As for tables, figures must be numbered uniquely and consecutively from beginning to end of the thesis, and **figure titles listed must be identical to those used within the body of the work.**

A List of Symbols or List of Abbreviations may be included after the List of Tables and/or List of Figures. Provide, in alphabetical order, the abbreviations and the words they represent. Page numbers are not required.

### **Bibliography or Reference List**

Books, articles and other materials used in the dissertation should be listed according to the accepted bibliographic practice in the field of your thesis. A single bibliography at the end of the dissertation is preferred. If you list references or a bibliography at the end of each chapter, the first page of each should be listed in the Table of Contents. Bibliographies may be single-spaced.

Ethical scholarship requires that you show clearly the sources of the facts and concepts represented in your dissertation, whether published books and articles, unpublished historical documents or theses or personal communication with other workers in the field. The format of this documentation varies by field. Consult with your department and advisor for standard reference procedures in your discipline and apply them consistently. **Plagiarism, even if unintentional, can result in forfeit of your degree.**

### **Appendices**

Long or detailed tables, questionnaires, approval letters or other materials that are relevant to the thesis but are not necessary to understanding the text, should be placed in an appendix or appendices and listed in the Table of Contents. All appendix pages must be numbered and are to be included in the Table of Contents.

### **Previously Copyrighted Material**

If your dissertation includes any material (your own or others) subject to prior copyright, including psychometric instruments, poetry, fiction, images or figures, you **MUST** provide evidence that you have permission from the prior publisher to include them in your thesis. If inclusion is important, start early to

secure permissions because these will be required when uploading the final thesis to ProQuest®. If you do not have permission to use such content, eliminate it before final upload to ProQuest.

### **Plan Ahead for a Smooth Defense**

When you are preparing to submit your dissertation for registration, be sure to inform your graduate coordinator or program assistant of your plans well ahead of time. You also will want to take full advantage of internal reviews of the dissertation before uploading the thesis for defense registration, in order to minimize the number of errors in the registration version.

In some instances, when in-person attendance truly is not possible, a remote meeting program such as Zoom or Skype may be used to enable a committee member to participate in the defense remotely. An email request must be made to the University Dean of Graduate Studies that includes the names and email addresses of the student, committee members and defense chair with a reason for the request. Convenience is not an acceptable reason. If approved, a document outlining the conditions for the approval will be emailed to everyone. Under no circumstances will the student, advisor or defense chair be permitted to participate via Skype.

As noted earlier, pay careful attention to the five PhD degree cycle deadlines. In each degree cycle, there is a deadline for the last day to complete your degree requirements, consisting of uploading the final abstract and dissertation to ProQuest®, submitting a UR Research authorization form, and completing two required surveys. There are no exceptions to the deadlines. If a deadline is missed, your name cannot be approved by the Council on Graduate Studies and presented to the Board of Trustees until the following degree date.

### **Preparing for Dissertation Submission to ProQuest®/UMI**

The University has a contractual arrangement with ProQuest®/UMI Dissertation Publishing for the on-demand publication of PhD dissertations and the electronic and print publication of PhD abstracts in *Dissertation Abstracts International*.

NOTE: DMA, EdD and DNP students should check with their schools for requirements regarding whether ProQuest®/UMI is used to for the theses produced for those degrees. All aspects of completion of those degrees are managed within the schools and not by the University Graduate Studies office.

The day following your successful defense, you will receive an email from the University Graduate Studies office with detailed information regarding all final degree requirements. It will be a stressful time, so be sure to carefully read through all the information and follow the instructions so as not to delay your degree conferral.

All PhD students are required to complete the ProQuest Dissertation Publishing Agreement on the University of Rochester ProQuest®/UMI web site. You may set up your online account before your defense so that you can familiarize yourself with the site and be ready to complete the process after the defense. Much of the required descriptive information can be completed before the defense, but do not upload the abstract or dissertation until after the defense when all corrections have been made and the document is finalized. The uploaded version must reflect all requested corrections from the committee and the graduate studies offices, and, if stipulated at the defense, must have been approved by the advisor or committee.

\* \* \* \* \*

Best wishes in completing your PhD requirements. We look forward to seeing you at Commencement!

### Format of Title Page

Dissertation Title Typed in Upper and Lower Case Letters: Not all Caps or all Lower Case Letters

by

Your Name [no degree credentials]

Submitted in Partial Fulfillment of the

Requirements for the Degree

Doctor of Philosophy

Supervised by Professor [Your Advisor(s)' first and last name-- no degree credentials]

(School Name and department or program, if applicable, centered on the page (see examples below))

Department of Chemistry  
Arts, Sciences and Engineering  
School of Arts and Sciences

OR

Department of Mechanical Engineering  
Arts, Sciences and Engineering  
Edmund A. Hajim School of Engineering and Applied Sciences

OR

Department of Music Theory  
Eastman School of Music

Health Practice Research  
School of Nursing

Education  
Warner School of Education

Business Administration  
Simon School of Business

OR

Department of Biochemistry and Biophysics  
School of Medicine and Dentistry

Program in Neuroscience  
School of Medicine and Dentistry

University of Rochester  
Rochester, New York

2017 (or year of degree conferral)

---

Notes: No page number is printed on the title page but it is counted as page "i".

Primary advisor or co-advisors are listed, not the entire committee.

Preface the advisor(s)' name(s) with the word Professor

Department name is listed if program arises from one department.

Program name is listed if different from department name or crosses departments.

School or schools are listed.

Example of  
**Table of Contents**

This will be either page ii or page iii, depending on whether or not you have a dedication page.

Include your front matter with headings and lower case Roman numeral page numbers. Use of the word processor table of contents function or a table format (with no borders) rather than tabs is recommended.

Do not include listings for the title page, dedication page or the table of contents itself

Biographical Sketch		iii
Acknowledgments		iv
Abstract		v
Contributors and Funding Sources		vi
List of Tables		ix
Chapter 1	Introduction	1
Chapter 2	Re-adjusting Utility for Justice	52
Chapter 3	An Adequate Axiology	78
Chapter 4	World Utilitarianism and the Problem of Mediated Consequences	119
Chapter 5	Intended and Foreseeable Consequences, Acquiescence, and Moral Responsibility	156
Chapter 6	The Failure of Utilitarianism	197
Bibliography		237
Appendix A		256
Appendix B		275

**Note: Be sure the page numbers line up beneath one another. They can be either right or left justified.**

**In the pages following the Table of Contents, include the List of Tables, List of Figures, etc., if applicable, continuing the lower case roman numeral page numbering.**

## Example of Table of Contents

This will be either page ii or page iii, depending on whether or not you have a dedication page.

Include your front matter with headings and lower case Roman numeral page numbers. Use of the word processor table of contents function or a table format (with no borders) rather than tabs is recommended.

Do not include listings for the title page, dedication page or the table of contents itself

Biographical sketch		v
Acknowledgments		vi
Abstract		vii
Contributors and Funding Sources		viii
Chapter 1	Introduction	1
	1.1 Motivation for this Work	2
	1.2 Early Landmark Studies of Highly Vibrationally Excited Molecules	4
	1.3 Intramolecular Vibrational Energy Redistribution from Frequency Domain Spectra	6
	1.3.1 Introduction	6
	1.3.2 Perturbation Theory Point of View	7
	1.4 Spectral Congestion in IVR Studies	17
	1.5 Overview of Thesis	19
	References	22
Chapter 2	Vibrational Overtone Spectroscopy and Local Modes	25
	2.1 Vibrations in Polyatomic Molecules: Local vs. Normal Modes	25
	References	32

Example of  
**Biographical Sketch** (do not call this Curriculum Vitae)

The author was born in [City, State, Country.] He/She attended [XXXX] University and graduated with a Bachelor of Arts/Science degree in [major]. Provide a similar description for any Masters degrees.

Describe professional or career path prior to doctoral study, if applicable. He/She began doctoral studies in [field] at the University of Rochester in [year]. He/She was awarded a Name(s) Fellowship in 200X and 200X][if applicable]. He/She pursued his/her research in (subject area) under the direction of advisor(s) names(s).

The following publications were a result of work conducted during doctoral study: [list full bibliographic reference information in the format used elsewhere in the dissertation]

Publication A

Publication B

Etc.

Notes: The Biographical Sketch is written in the third person.

Do not include the anticipated date of your doctoral degree nor any future plans or employment.

Example of  
**Contributors and Funding Sources**

This work was supported by a dissertation committee consisting of Professor XXXX [advisor – also note if co-advisor] and XXXX of the Department of [Home Department] and Professor(s) XXXX of the Department of [Outside Department]. The data analyzed for Chapter 3 was provided by Professor XXXX. The analyses depicted in Chapter 4 were conducted in part by Rebecca Jones of the Department of Biostatistics and were published in (year) in an article listed in the Biographical Sketch. All other work conducted for the dissertation was completed by the student independently. (If applicable) Graduate study was supported by a XXXX [name of Fellowship]. Also include any sponsoring grant information here.

Example of  
**List of Tables**

(use the same format for List of Figures, List of Schemes and List of Symbols, if applicable)

Table	Title	Page
Table 4.1	Laser operation parameters.	65
Table 4.2	Gas conditions for supersonic free jet expansion.	69
Table 5.1	Deconvolution calculation of the $\nu_{OH}$ spectrum of $CH_3OH$ .	83
Table 5.2	Fundamental frequencies (in $cm^{-1}$ ) for methanol and isotopically substituted methanols in the gas phase.	86
Table 5.3	Zero-point energies (from ref. 11) and relative populations at different temperatures for the different conformers of $CH_2DOH$ and $CHD_2OH$ .	100