

# RECOMMENDATIONS ON RECOMMENDATIONS

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ABSTRACT: Writing letters of recommendations for students is one of the many important duties of a college professor. The letter must accurately portray the experiences and abilities of a student. The recommendation should be positive but truthful — fair to the student, to the person receiving the letter, and to the writer. Here we share some advice for professors on writing a recommendation, present a hand-out for students seeking recommendations and provide two sample recommendations.

KEYWORDS: Recommendations.

## INTRODUCTION

Over the past five years, the four of us have read nearly five thousand letters of recommendation for academic positions, academic awards, and summer mathematics programs. We have seen a wide variety in the length and quality of these letters; we know what we like, and we would like to share our opinions with you.

Considering the importance of these letters to the future opportunities of our students, the time and effort spent on them is a valuable investment. The care with which a letter is written reflects on both the writer and the student. With that in mind, we would like to offer some advice to students and professors on requesting and preparing letters of recommendation. (See also Gillman [1] and Keith [2] for humorous recommendations and Krantz

[3] for suggestions on writing recommendations for colleagues as well as for students.) Here we give a general format for what needs to be included in a recommendation, and we offer some recommendations on making your letter stand out.

In an appendix we provide a handout for students with advice on requesting letters of recommendation and on providing the professors with adequate information to write a well-informed letter. This handout can be tailored to your specific department and made available on your department's web page<sup>1</sup> or handed to students when they request a letter from you. We also provide sample letters for both a weak student and a strong one.

## RECOMMENDATIONS ON WRITING THE LETTERS

When a student approaches you with a request for a letter of recommendation, a good starting point is to take some time, even if it is just a few minutes, to talk with the student. At that time, you can find out more about the program to which the student is applying, request information from the student which would help you to write a stronger letter (see the sample handout), and, perhaps, offer additional advice about his or her application. Some requests for letters are easy to accept, some are more difficult, and others you may want to decline. You can tell the student what kind of things you might say. You might also want to tell a student that Professor X is in a position to write a stronger letter. Above all, be honest. It is only fair that the student knows if you feel your letter won't be entirely positive.

Once you have agreed to write a letter of recommendation and received the relevant information from the student, it is time to think carefully about what you choose to say in this letter. Naturally, we all want our students to succeed; however, in the long run, it will hurt more than help if every letter you write claims that the candidate is one-in-a-million. Your credibility (and the credibility of students from your institution) simply won't last very long. Here, then, are some tips on writing a positive and accurate letter.

In general, it is a good idea to write your letter as soon as possible. It is easier to think of positive things to say when you aren't under the pressure of an application deadline. As you write, think about the positive

<sup>1</sup>You may alter and reproduce the student handout as you wish; find it electronically at: <http://www.mathcs.carleton.edu/GuidetoMath.html>.

traits of your student. If you are enthusiastic about your student, let your enthusiasm show.

Remember to proofread your letter of recommendation carefully: a carelessly written letter reflects poorly on you and on your student as not being worthy of your time. This is true not only of paper recommendations, but also of recommendations sent by email. Don't allow the convenience of email to lull you into complacency and informality.

Use your school's letterhead stationery. If at all possible, address your letter to a person rather than To Whom It May Concern. The format for most letters of recommendation is fairly standard: you should explain how well you know the student, describe the student's strengths and weaknesses, giving, if possible, some means by which the reader can compare the student to a larger population of students, and summarize your statements by giving the degree to which you recommend her for the position. Below is one format for such a letter, paragraph by paragraph. However, as long as your letter contains essentially all of this information, you should feel free to incorporate your own style to emphasize your enthusiasm for her.

- Clearly state the student's full name and the position to which she is applying. State how well and how long you have known the student.
- Detail the student's performance in your course(s), providing comparisons with other students who have pursued similar goals. Comment specifically on projects, presentations, or papers to support your assessment of her abilities. This is the most important information you have to provide, and certainly worthy of several paragraphs if you have particular stories of inspired proofs, provocative presentations, or general brain-in-gear mathematics with which to regale the reader. This is your best opportunity to provide insight into the true character of the student and to make her application stand out. In general, you should cover intellectual ability, work ethic, communication skills, and ability to work with others. Provide specific examples wherever possible.
- Discuss the student's personal qualities, student employment, or extracurricular activities, if appropriate. If these activities (such as President of the MAA student chapter, Putnam team member, junior high mathematics tutor volunteer, real analysis paper grader) paint a colorful background of enthusiasm for mathematics or skill at teaching others, let the reader know.
- Include a paragraph describing your institution and its graduates, especially if your institution is small or relatively unknown. See the

sample letters of recommendation for examples. (In order to provide a context for your comments, it may be more appropriate to include this paragraph before comparing the student to her peers.)

- Conclude with emphasis on the student's positive attributes and how they contribute to her qualifications for the position. State the degree of your recommendation, usually indicated by choosing from the following scale: truly exceptional, very highly recommend, highly recommend, recommend, recommend with reservation. Finally, offer your own contact information (email address or phone number) should the reader desire to speak with you.

There are occasionally students who are indeed worthy of an exceptionally strong letter. If you want a student to stand out in a pool of applicants, and you know a contact at the receiving end, then a personal message handwritten at the bottom of your letter or on a sticky note, once again extolling her virtues, really is noticed. Over the years of reading applications, there have been some candidates whom we simply had to meet because the phrases used to describe them were so compelling. Of an applicant to our summer mathematics program it was written: "You can borrow her for the summer, but please don't steal her away from us." One applicant was described as having "the soul of a mathematician." A colleague at a different institution who knows us wrote: "I recommend her with an 8.7 on the universal fanaticism scale." Several times a student has been described as "the best student I've had the pleasure of teaching in my 25 years at this college." These are very strong statements. A colleague still tells the story of a new PhD who received an on-campus interview because in one of his letters he was called "the Pied Piper of mathematics." Everyone had to meet him. Phrases such as these demand attention and make a great impression.

As educators, we always hope that students have the ability to use the skills and knowledge gained in our classes. We take pride in our students' accomplishments, and we want them to make the most of their education. Providing a good, clear picture of our students will help them to find positions matching their talents and interests.

## REFERENCES

1. Gillman, Leonard. 1994. Letters of Recommendation. *FOCUS*. 14(4):21.
2. Keith, Sandra Z. 1994. Please supply three letters of reference. *FOCUS*. 14(1):5.

3. Krantz, Steven G. 1997. *A Primer of Mathematical Writing*. Providence: American Mathematical Society.

## APPENDIX I: A HANDOUT FOR STUDENTS SEEKING RECOMMENDATIONS

Letters of recommendation are an important part of any application. While your transcript can tell the selection committee some things about your performance in class, your recommenders will be able to put a human element into your application by describing your personal and mathematical strengths and weaknesses, and will be able to compare your abilities to the abilities of all the other students whom they have taught. For many people reading applications, letters of recommendation are more important than your grade point average.

You should ask professors who know you well academically; they will be most able to describe your uncanny ability at finding just the right example to explain a difficult concept to your peers or to defend your natural ability in mathematics despite the B<sup>-</sup> you earned in a course. Make an appointment with each professor you would like to ask to write for you to discuss your application; leaving a request for a letter in a professor's mailbox is not only discourteous but also dangerous if that person may be going out of town. You should take into account that some professors may be on leave during your senior year.

Draft the cover letter and personal statement for your application before meeting with your recommenders. Read the description of the position carefully. What aspects of your background make you a strong candidate? Why do you want this particular position? Which of the places to which you are applying is your first choice? Why?

You should also be prepared to discuss with your recommenders any of the topics below which pertain to your academic experience. Some professors will wish to have only a conversation with you, while others may want you to prepare an informal résumé to which they can refer when writing your recommendation. Your informal résumé may include any of the following:

1. Phone number, email, or address in case your professor wants to contact you.
2. Short- and long-term career goals.
3. Mathematics and mathematics-related coursework: include term, grade, instructor, and any special contributions such as independent projects or class presentations.

4. Honors, awards, or scholarships.
5. Relevant work experience and extracurricular activities; interpret "relevant" in a broad sense: include work or activities which illustrate your scholarly potential, leadership, energy, motivation, and dedication to your field.
6. Math-related activities such as Research Experiences for Undergraduates, the Budapest Semesters in Mathematics, or summer mathematics programs: give information about where and when the activity took place, who the director was, what you studied, and the results.
7. Independent Studies or Independent Research: include the term, instructor, intent, and results (books or papers read, talks given, papers written).
8. Presentations, publications, or other evidence of your ability to communicate mathematics: include talks you've given within or outside your department and articles you have submitted for publication, such as those resulting from an REU or independent research.
9. Professional meetings that you have attended.
10. Your specialized mathematics interests.

You should provide your recommenders with the forms that they need in an organized manner. On one sheet, write a list of all positions for which you are applying, complete with addresses and deadlines (indicating whether they are postmark or receipt deadlines). Fill out all the information on the forms that you can, such as name of applicant and recommender. Provide addressed, stamped envelopes with any necessary forms tucked inside the envelope. Finally, place copies of your application materials, the list of deadlines, and the forms in manila envelopes or folders emblazoned with your name and hand-deliver them to your professors.

## **APPENDIX II: SAMPLE LETTER FOR A WEAK STUDENT**

### **Recommendation for JOE C. STUDENT**

I am writing to you concerning Joe Student's application for the master's program in mathematics at State University. Joe was a student in my Introduction to Mathematical Structures course when he was a sophomore. More recently, he was in Advanced Calculus in the fall of 1997.

In order to provide a context for my comments about Joe, permit me to tell you about Keillor College and Joe's fellow mathematics majors. Keillor is a regional liberal arts college located in the upper midwest with an enrollment of approximately 1500 students. We are fortunate that our mathematics program attracts some of the best students at Keillor. Each year we typically graduate six mathematics majors, one or two of whom pursue an advanced degree in mathematics or statistics. In the past five years, four have enrolled in applied mathematics programs, three in statistics, and two in operations research. All have either completed a master's degree or are making satisfactory progress.

In both of the courses he took from me, Joe succeeded through sheer determination and lots of hard work. He earned a B in the structures course and a B+ in Advanced Calculus. Although Joe clearly loves mathematics, the material covered did not come easily to him. Joe recognized this and put forth that extra effort in order to make it through these courses. His grades are not a reflection of lack of effort. Joe always spent plenty of time on these courses and often came to my office to ask questions. Moreover, instead of merely asking for help on homework problems, Joe's questions were always aimed at a better comprehension of the material. This is his biggest asset, this willingness to tackle difficult material even when it is a real struggle for him.

Academically, Joe would not be one of the stronger students that Keillor has sent on to graduate school in recent years. That fact is his biggest weakness. On the other hand, when it comes to maturity and willingness to tackle the work load, he has my very enthusiastic endorsement. Joe is about as pleasant and amiable a person as one could hope to meet. To his credit, Joe has no illusions about his academic skills. He will admit that he isn't as sharp as some of the other mathematics majors, but will also truthfully state that he is willing to work as hard as necessary to succeed. If he is accepted, his instructors should be prepared to have someone come to their offices with many questions.

The only reservation I have about Joe C. Student is his academic strength. At this time I would consider him to be a good candidate for a master's program but would be hesitant about endorsing him as a doctoral candidate. If I can be of further assistance, please don't hesitate to call me at (507) 555-1234.

Sincerely,  
Iman Instructor  
Associate Professor of Mathematics

### APPENDIX III: SAMPLE LETTER FOR A GOOD STUDENT

#### Recommendation for JANE D. SCHOLAR

Dear Professor Marten,

I am writing in support of Jane D. Scholar's application to your graduate program in mathematics. I have known Jane since her first year when she enrolled in my Calculus III course. Subsequently she has been my student in both Complex Analysis and Differential Geometry. Moreover, she is my advisee and has been a grader for my Calculus II class.

Jane was far and away the top student in all three of my courses, and ranks among the very best students from Carleton who have gone on to pursue graduate degrees in mathematics. In her assignments, Jane is meticulous. She pays careful attention to detail and to the logical structure of her proofs. Jane combines considerable mathematical talent with excellent work habits.

In Complex Analysis Jane presented a talk on Riemann Surfaces demonstrating an unusual depth of understanding for an undergraduate. As part of Carleton's Senior Integrative Exercise, each major is assigned a topic unfamiliar to the student and, within five weeks, must prepare a one-hour presentation without assistance. Jane's topic, Linear Fractional Transformations of the Upper Half-Plane, earned her departmental distinction and was unquestionably the best comps presentation I have seen in the last five years. Jane's computer-generated graphics demonstrated her geometric insight while the blackboard portion of her talk carefully addressed the underlying mathematics. The organization and clarity of her presentation showed that Jane possesses tremendous potential as a teacher, and the material she was able to assimilate on her own from the literature showed that she possesses tremendous potential as a mathematician.

Outside of class, Jane is active in mathematics club and has participated in the Putnam competition. After a score of 39 as a sophomore (which ranked her in the top 100), she has been on our Putnam team for the past two years (scoring a 48 this year). During the fall of her junior year, she attended the Budapest Semesters in Mathematics program, where she studied Number Theory, Combinatorics, and Set Theory. Jane's other academic interests include economics and Russian. She also plays oboe in a chamber music ensemble. Personally, Jane is good-natured and quiet.

Let me tell you a little about Carleton and Jane's mathematical peers. Carleton College is a highly-selective liberal arts college which attracts many superb mathematics students. About 14% of the student body are National



Merit Scholars, and 68% are from the top 10% of their high school classes. Within 5 years of graduation, 69% of Carleton students enroll in a graduate program. Some of our average mathematics majors have earned PhD's in mathematics at good graduate schools. Our best majors have received NSF graduate fellowships and attended the most respected graduate institutions.

You may recall that Bill A. Lum, one of your current graduate students, also attended Carleton. Although Jane lacks the depth of Bill's background, particularly in algebra, she has greater breadth and shows greater overall mathematical potential.

Jane's talent, enthusiasm, and dedication make her an ideal candidate for a graduate program of your caliber. Confident that she will be an asset to your program, I give her my highest recommendation. If you have any questions, please contact me at prof@college.edu.

Sincerely yours,  
Ima Professor  
Professor of Mathematics

### BIOGRAPHICAL SKETCHES

John M. Alongi received his PhD from Northwestern University in the field of dynamical systems. Currently, he is an assistant professor of mathematics at Carleton College.

Deanna Haunsperger received her PhD from Northwestern University in voting theory. After teaching for three years at St. Olaf College, she is now an assistant professor of mathematics at Carleton College. Deanna is Co-Director of the Carleton and St. Olaf Colleges' Summer Mathematics Program for women and Co-Editor of the MAA mathematics magazine *Math Horizons*.

Gail Nelson is an associate professor of mathematics at Carleton College. She came to Carleton in 1988 after receiving her PhD from the University of Minnesota in real analysis. Besides teaching, Gail is active in the MAA and is at present serving on the Board of Governors.

Eric Westlund received his PhD from UW-Madison, and worked on the UW Quantitative Assessment Project for three years before becoming an assistant professor of mathematics at Carleton College. His research is in algebraic topology, specifically arrangements of hyperplanes.