

Letters of Recommendation Examples

Chemistry Professor about a Chemistry Student¹

I write to express enthusiasm for the superb job that Chemistry Student has done in her undergraduate research concerning the development and discovery of new molecular tools for basic research in membrane biochemistry. Chemistry Student has pursued her research with a remarkable and unique combination of creativity, independence, perseverance and versatility. I will comment on each of these qualities in turn.

Creativity – Beginning with a mere suggestion from me that she investigate the electrostatic and hydrogen-bonding properties of modified indole rings in membrane spanning peptides, Chemistry Student defined a broad scope for the project and infused her creative abilities into each aspect of the research. On the experimental side, she pursued new strategies for the labeling of modified rings that were intractable by the methods in current use in my laboratory (see “perseverance,” below). Not content with experiments alone, Chemistry Student on her own sought to fill a gap in the existing literature by doing *ab initio* calculations (for which I have no expertise) to determine the dipolar properties of her modified indole rings; she obtained the help of Dr. Peter Pulay to perform these calculations. Furthermore, she, on her own, wrote to a leading pharmaceutical company to request a gift – for research purposes – of a particular chemical isomer of one of her molecules that has been reported but is not commercially available. She has gumption and drive, combined with innovative curiosity, that are rare among graduate students or indeed established scientists at any level.

Independence – As noted above, Chemistry Student expanded the scope of her project, in terms of theoretical as well as experimental aspects, far beyond my original suggestions. She designed and performed her own experiments and calculations in a highly original fashion.

Perseverance – Some of Chemistry Student’s early experiments involving organic synthesis and catalyzed hydrogen/deuterium isotope exchange reactions did not go well. In particular, the standard trifluoroacetic acid-catalyzed isotope exchange on indole itself, the approach to 7-aza-indole was unknown and Chemistry Student continues to endure failure after failure with difficult experimental procedures. Fortunately, her persistence was rewarded. By suitably modifying the existing procedures, she developed a new method introducing deuterium into 7-aza-indole rings. The method will have general applicability of labeled samples as probes for analysis for magnetic resonance spectroscopy in biological membranes.

Versatility – I have already mentioned the two major aspects of Chemistry Student’s versatility, namely her willingness and flexibility to modify her experimental approaches to achieve the necessary chemical products and her interest in combining theory with experiment. I

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have not seen other undergraduate students assume such a broad combined perspective toward understanding an overall research question.

In summary, Chemistry Student bubbles with ideas and possesses the practical ability to carry them to fruition. Her inquiring mind makes it a pleasure to work with her.

Chemistry Professor about a Chemistry Student²

While I have advised many talented undergraduate research students through the years, Chemistry Student project is the most innovative that I have seen by an undergraduate student during my career.

He was awarded a nationally competitive Pfizer Fellowship for his work. Chemistry Student has presented his exciting results both at Pfizer headquarters in Groton, Connecticut, in October, 2000, and at the national meeting of the Biophysical Society in Boston, Massachusetts, in February, 2001. The foundation that Chemistry Student has established has given my laboratory the best possible chance to date for understanding the conformational transitions (I.e., structural rearrangements) that accompany voltage- dependent opening (“gating”) of a membrane-spanning channel of known structure at the molecular level. (Since we will not insist on keeping him here following his graduation in May, Chemistry Student fine work will be extended by graduate student Sigrid Schmutzer as part of her Ph.D. thesis.)

Chemistry Student is a delightful, motivated, hard-working and imaginative student. His research project is highly challenging, in both concept and execution. Admittedly, some of the background for Chemistry Student project was in place even before his arrival in our laboratory.

We had discovered the first gramicidin peptides that gated as homodimers instead of heterodimers, and the observation raised the possibility of characterization by magnetic resonance. But it was Chemistry Student who seized this opportunity, developed and synthesized appropriate deuterium-labeled peptides, performed the deuterium magnetic resonance measurements, and turned a phenomenon into an experimental reality. With Chemistry Student very significant progress on sample development and methods development, we are now near the very difficult goal of “voltage-dependent” magnetic resonance experiments (in which an alternating electric field must be established across oriented membranes inside a superconducting magnet).

Our laboratory now occupies a fortunate position. Because of our unique opportunity for characterizing for the first time the molecular details of voltage gating, our laboratory is envied as well as respected within the international biophysics' community. I cannot say enough about Chemistry Student contributions to this favorable situation; Without his undergraduate thesis work, we would not be now poised to solve this molecular gating problem. Only Chemistry Student impending graduation (and subsequent graduate study in another prestigious chemistry

department) will preclude his seeing forthcoming voltage-dependent magnetic resonance experiments to their ultimate conclusion. Others will enjoy the benefits of the groundwork that he has prepared and will have the privilege of being coauthors with Chemistry Student at the time of publication.

In summary, Chemistry Student is imaginative in experimental design and productive in performing experiments in the laboratory. His contributions to our research efforts on voltage dependent gating of channels have been outstanding.

Physics Professor about a Physics Student³

Physics Student is the brightest undergraduate student that I have guided in the last seven years of my faculty career. Physics Student made her excellent academic and dynamic professional impression because of her passion for scientific curiosity, cutting edge technology and ability to function in a team while maintaining her identity. She has been working on “studying nanomechanics using nanoindentation at tip-GaAs interface” in my research group for the past two years. Her participation is funded through an NSF-Research Experience for Undergraduates (REU) program. The project is an interdisciplinary effort among Physics and Mechanical Engineering departments in the field of Nano Integrated Micro Systems.

The investigation on characterizing and decontrolling damage (I.e. stress, strain, lattice defects) in gallium-arsenide (GaAs) caused by nano-scale mechanical perturbation for the realization of patterned quantum dot arrays is the area of Physics Student’s broader scientific interest. Specially, the aim of Physics Students project and manuscript was to investigate the role of morphology of nano imprint patterning of quantum structures. Precision spatial ordering or ‘printing’ of quantum dots by the injection of highly-localized damage sites in 111-V semiconductor surfaces in an area of immense scientific, engineering, and commercial applications interest.

Her approach is to study patterned perturbations in GaAs caused by nanoindentation. The study of nano-scale perturbations in GaAs will give data and clues to the growth mechanisms of quantum dots as function of perturbation site’s nanochemical properties. If this research is successful, it would establish processes for the selective growth of quantum structures and would lead to viable inexpensive nanomanufacturing processes for fabricating arrays of identical quantum dots. Ms. Prince’s research addresses the following research and education themes: (1) Manufacturing Processes at the Nanoscale, (2) Nanoscale Structures, Novel Phenomena, and Quantum Control, and (3) Nanoscale Devices and System Architecture

Classics Professor about a Classics Student⁴

I am very pleased to recommend the work of Classics Student for publication in *Inquiry*. Classics Student is one of my finest Latin students, and his final project for CLST 4003H (Rome on Film, 2003) received the highest score in a class of 20 very talented honors students. He produced a carefully researched and skillfully constructed website analyzing DeMille's *King of Kings* in comparison with the tradition of Passion Plays and Hollywood movies the crucifixion. This website subsequently formed the kernel of his honors thesis proposal, to examine the transition in post-war films from blaming the Jewish community for Christ's death to blaming specifically the Romans, a movement away from anti-Semitism toward the condemnation of fascism and communism in the aftermath of the Holocaust. Classics Student received a Scholars' Undergraduate Research Fellowship for 2004-2005 from the State of Arkansas to support his research.

Over the past year, Classics Student has crafted his thesis into a truly publishable work. I am an associate editor of the journal *Arethusa* (Johns Hopkins), and frequently review manuscripts for Cambridge University and other presses. In the last five years, the representation of Rome on film has become a very hot topic, with several major new books; I may be biased, but if I were to receive his manuscript anonymously, I would regard it as a significant, well researched, and well written contribution to this debate.

Specifically, Classics Student makes a new and persuasive argument that post-World War II Roman movies were an unmatched force for the solidification in popular culture of the newly minted concept of "Judeo-Christian." As these films shifted responsibility for the crucifixion of Christ from the Jews to the Romans, the latter were reborn as oppressive stand-ins for fascism and communism. Thus, history was rewritten (not so much the irrecoverable history of the crucifixion itself, but political history) so that Judaism and Christianity could appear as one faith, without conflict, while the formerly positive role of Rome as a major influence on the shaping of political and legal institutions was eclipsed. Classics Student further exposes the contemporary relevance (and fragility) of the "Judeo-Christian" by parsing the religious Right's awkward response to Mel Gibson's *The Passion of the Christ*. Whether or not it captured what the crucifixion was "really" like, this film threatened to unravel the illusion of a single harmonious tradition by shifting the blame back to the Jew's, thus bringing the tradition of Passion plays and widespread Christian anti-Semitism back into the picture. Highly defensive about exposing the "Judeo-Christian" to the grim, undeniable history of Jewish-Christian relations from A.D. 50-1950, the Right, Classics Student argues, greatly preferred to frame the debate around the quality and accuracy of Gibson's portrayal of twelve hours in Roman Judea.

Scrupulous in its documentation from the films, the ancient historical tradition, and post-war politics, I regard this manuscript as very nearly ready for submission to a major press. In fact, I have already asked Classics Student to fashion a chapter of it into a contribution for a book I am writing about masculinity in Roman film epics (*Titus Androgynous: Troubled*

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Inquiry: The University of Arkansas Undergraduate Research Journal, Volume 6.

Masculinity in the Roman Movie). This is the strongest recommendation I can make for the work of an undergraduate, who (just as we all hope) has really emerged as a colleague. This fall, Classics Student will be a graduate student in Classis at the University of Minnesota. I'll certainly miss him as a student, but I can't wait to collaborate with him as a thinker and a writer.

Music Professor about a Music Student⁵

Music Student's study of the powerful and perhaps even shocking electronic music phenomenon of *Japanese noise* (also *Japa-noise*) for her Honors Thesis in what I know as a Systematic Musicology has taken me along – over at least two years – on one of the most innovative, imaginative, and surprising paths in my (now longish) career of supervising undergraduate debuts in research. This article, on the genesis of *noise* and the aesthetics of the pioneer Tokyo-based *noisicians*, draws from her thesis *Creating silence through noise; and aesthetic approach to "Japanese noise"*, and reflects one of the three integrated aspects of her investigation. She lays out here her argument that Japa-noise artists' perceptions of the noisiness of the city (Tokyo) are canceled out, or transformed, through their making of their own aesthetically enriching *noise*. It is probably useful to state that, in her full study, this proposition is etched out against the background of the Japanese relationship to nature and the environment, manifest in the arts as a particular aesthetic, and is sized up and contextualized alongside a consideration of public outcry and government legislation during the 70s and 80s over noise and vibration pollution in a Tokyo under construction as it was then. And the third, technical prop to the thesis is a visual-imagery-based musical analysis of representative *Japa-noise* works that aims, by attempting to represent in temporal and acoustic space the visual metaphor and plasticity of form articulated by the noise composers themselves, to support her position that their *noise*, explicitly or implicitly, relates to the noisiness of the city.

Embedded in Japanese aesthetics (disturbed by noise and vibration), then, this study of what is often characterized as chaotic and unstructured, named by the artists themselves as "pure harsh music", and typically finds its followers internationally in underground music scenes, is of remarkable refinement and breadth. Music Student has worked through scholarly literature on East Asian concepts of sounds and soundscapes beginning with a Chinese dictionary of the first century CE, on through aesthetic treatises on Japanese *Noh* drama, studies of Japanese architecture, town planning, and gardening, government white papers and statistics on noise and vibration pollution, ecological approaches to music perception and musical meaning, and out onto the streets and into the CD shops of modern Japan and in order to build her carefully painted, carefully worded picture of *Japanese noise*. She has long-standing interest in composing electronic music herself, experience which let her spend profitable summer-abroad research on her thesis-analysis of Japa-noise in the electronic music studios of the *Music, Technology and Innovation Research Centre* at De Montfort University, UK (with my colleague Dr. Leigh

Landy) and, as well, at the *Centre de creation musicale Iannis. Xenakis* (CCMIX), Paris (as participant in a Summer School).

I am delighted with the approach, openness, and originality of Music Student's study, and consider myself qualified to appreciate what it means to write an excellent, first piece of research in a foreign language. That a second paper drawn from the thesis *Making silence through noise: the soundscape of the Tokyo of the 1970s* was accepted for *Music and the Public Sphere: A Conference Presented by Echo: a Music-Centered Journal*, May 12 and 13, 2006, Los Angeles, CA, is just a first stage in recognition for this particular work, and only a first stage too in what I anticipate will be very fine academic career.