

## HOW TO WRITE AN ABSTRACT

### What is an abstract?

An abstract is a concise summary of a completed research project or paper. A well-written abstract will make the reader want to learn more about your research, read your paper, or attend your presentation. Abstracts also serve as a summary of the research so the paper can be categorized and searched by subject and keywords.

### How long is an abstract?

Generally, abstracts are limited to 200 to 300 words, but the exact word limit will be stated by the publication, conference, or organization requesting the abstract.

### Components of an abstract

- 1. Motivation or Statement of Problem:** Why do we care about the problem? What practical, theoretical, scientific, or artistic gap is your research filling?
- 2. Methods or Approach:** What did you actually do to get your results? Did you analyze three plays, interview 125 students, write a memoir, invent a more powerful photovoltaic cell, or translate a book? Did you approach your subject using a specific theoretical framework, technical procedure, or methodology?
- 3. Results or Product:** As a result of completing the above procedure or investigation, what did you learn, create, or invent?
- 4. Conclusions or Implications:** What are the larger implications of your findings, especially for the problem or gap identified in Step 1?

### There is no single format for writing a successful abstract!

The emphasis placed on each component will depend on your field or discipline. In some, cases, the methods will require more emphasis and explanation, while in other cases, the results and implications will require more explanation and emphasis. You are not required to follow the order of the four components above.

**See the following pages for examples of successful abstracts from various fields.**

### Tips for writing an abstract

1. It takes lots of revision to write a good abstract! Expect to spend some time preparing your abstract before submitting it.
2. Find the main point of your paper or research and phrase it in a way that can be understood by an educated non-expert.
3. You may repeat sentences from your paper in your abstract. In some cases, your paper's introductory paragraphs may be suitable for the abstract, but they will have to be condensed and rewritten to fit the purposes of the abstract.
4. Remember to use keywords important to your field of research or to use words that indicate your field (biochemical engineering, for example, or the history of Byzantine art).
5. Your abstract should not be so detailed that it requires quotations, citations, or footnotes. Remember, it's a summary!
6. If you are finding it difficult to summarize your paper or research concisely, write several paragraphs initially then cut and condense it to one paragraph.
7. If you are finding it difficult to meet the word limit, seek the help of an outsider reader (a friend or writing tutor) to help you cut excess words.

## Sample Abstracts

The following abstracts written by Tufts University undergraduates demonstrate different ways writers can summarize their research in various fields in the arts, sciences, humanities, social sciences, natural sciences, and engineering.

1. Interdisciplinary research in literature, history, and political science
2. Psychology
3. Biology
4. Mathematics
5. American Studies (Media Studies, Music, and American Politics)
6. Interdisciplinary research in American History and Community Health
7. Bio-Medical Engineering
8. History
9. American Studies & Media Studies
10. International Relations & Community Health
11. Creative Project: Art History, Museum Studies, & Documentary

1. Sample abstract for interdisciplinary research in literature, history, and political science: *This abstract foregrounds the historical, political, and social context to highlight the significance of the study. The last two sentences of the abstract describe the author's methods, findings, and purpose.*

### **El Colectivo de Escritores Jóvenes: Cultural Resistance to the Chilean Dictatorship**

Mie Inouye, International Letters and Visual Studies & Political Science (Class of 2009)

Research Advisor: Professor Nina Gerassi-Navarro

Between 1973 and 1990, Chile experienced a military dictatorship unlike any previous or subsequent political regime in its history. With the abrupt transition to dictatorship on September 11, 1973 came a corresponding cultural transformation. Along with the wider cultural changes that took place after 1973, Chile's literary scene was drastically altered due to the policy of censorship, the military intervention of universities, the realities of political exile and imprisonment and the dismantling of the state-run publishing house. Paradoxically, despite the many impediments to writing and publishing, Chilean writers of the generation of the eighties attest to the fact that there had never been more literary production. The Collective of Young Writers (Colectivo de Escritores Jóvenes), which formed in Santiago in the early eighties and united writers who were beginning their literary careers under emergency political conditions, is one example of the type of cultural movement that flourished under the dictatorship. This group operated based on the objectives of generating cultural activity, promoting solidarity among increasingly isolated writers, creating a space for democracy within the dictatorship, and resisting the dictatorship from its members' positions as writers. Drawing from a series of interviews with former members of the collective, I present the group's history and examine its relationship to cultural and social movements that unfolded post-1973. I also tell the stories of the generation of writers that began their careers during the dictatorship and analyze their writing in relation to the unique set of political circumstances that accompanied their development as writers.

2. Psychology: *This abstract is a good example of how to explain the significance of findings that did not match the researcher's hypothesis.*

**Can nonverbal behavior in popular media influence social category learning?**

Molly Lorenzo, Psychology, Multimedia Arts Minor (Class of 2009)

Research Advisor: Nalini Ambady

Social categories (e.g., race, gender, and nationality) have tremendous social consequences for individuals within those categories. This study investigates whether arbitrary categories, like shirt color, can be learned and integrated as a meaningful social category. It was hypothesized that people will be more likely to make distinctions of shirt color only if they are exposed to repeated instances in which one shirt color is nonverbally favored over another. Participants viewed screen shots of popular television shows to induce nonverbal favoring of one of two shirt colors, or neither in the control condition, and all were then given a memory task using a “who said what” paradigm to measure if shirt color was established as a new social category. I expected confusions in “who said what” to occur more frequently within a shirt color than between shirt colors and that this confusion should be more prevalent in the experimental conditions than in the control condition. Contrary to hypotheses, the number of within and between category errors did not depend on the experimental condition,  $F(2, 60) = 2.02, p = .14$ . Thus, the shirt color was not processed as a social category. The results reinforce the mystery of why certain social categories like race have greater consequences than others (e.g., ear size or shirt color).

3. Biology: *Even though this abstract uses language specific to biology, an educated reader can understand the significance of this study by reading the first and last sentences.*

**A Morphological and Genetic Analysis of *Polistes versicolor*:  
the Paper Wasp Invading the Galápagos Islands**

Christopher Perrone, Biology and Psychology (Class of 2010)

Research Advisor: Dr. Philip Starks

*Polistes versicolor*, a wasp native to Ecuador, has only recently invaded the Galápagos Islands. This invasion may have put us in position to explore evolution as it occurs, but only if we collect data as the invasion progresses. With preliminary evidence suggesting *P. versicolor* body characteristics vary with elevation, we gathered ecological, morphological, and genetic data during the early phase of this invasion. Individuals ( $n = 714$ ) from the Ecuador mainland and six different island regions were collected by Philip Starks and Frank Sulloway in 2007 and 2008. Head, wing, and leg measurements were gathered. DNA was extracted and cataloged for each animal, PCR was performed on mainland and select island individuals, and loci were examined by polyacrylamide gel electrophoresis. We found significant morphological differences in relation to elevation. Data suggests that larger heads, smaller wings, and smaller legs are seen at higher elevations. Highly polymorphic loci have also been isolated for mainland individuals. Preliminary genetic data suggests that island-specific reductions in genetic diversity may have occurred and such limited variation supports morphological plasticity. These data will serve as a reference in morphological and genetic analyses over time to decipher whether plasticity or evolution is driving such differences.

4. **Mathematics:** *Although you may have to be a mathematician to understand the details of this abstract, it contains a good example of how to reference other scholars in an abstract.*

### **Three Types of Randomness**

Adam J. Raczkowski, Mathematics & Computer Science (Class of 2009)

Research Advisor: Professor Benjamin Hescott

Three types of randomness are integral to the strength of public-key cryptography. With the techniques of Allender et al., we present an analysis of how the ability to quickly distinguish Kolmogorov randomness allows for a probabilistic attack on two of the conjectured hard problems underlying public-key cryptography: the discrete logarithm and factoring. Specifically, Kolmogorov random strings are pertinent to inverting one-way functions and distinguishing pseudorandomness from true uniform randomness. This method provides a lens that more sharply categorizes the hardness of the discrete logarithm and factoring in the hierarchy of well-known complexity classes. Using this approach, we establish relationships between provably secure public-key cryptography, Kolmogorov complexity, and the essential cryptographic primitives.

5. **American Studies (Media Studies, Music, and American Politics):** *This abstract foregrounds the original contribution the author is making to an emerging field of study.*

### **Live and Direct: the Theoretical and Qualitative Impact of Live Nation on Contemporary Popular Music Performance**

Mikey Goralnik, American Studies (Class of 2009)

Research Advisor: Deborah Pacini Hernandez

The Reagan administration initiated an era of sweeping media deregulations that culminated in the Telecommunications Act of 1996, considered by many to be the most important piece of media policy in US history. In the wake of this broad legislative agenda, a handful of large corporate entities, the largest being California-based Live Nation, have come to directly own most of this country's live music promotional apparatuses. While the existing literature on media deregulation and consolidation does not yet extend far enough to sufficiently address live popular music, the field's dominating frameworks would suggest that by corporatizing and commodifying a media product, deregulation would have a decidedly negative impact on popular music performance. My research, the first that deals entirely with contemporary popular music performance, refutes that suggestion. Based on interviews with eight popular music performers on their experiences with Live Nation venues and promoters, my research characterizes the goals that popular musicians associate with their performances and arrives at a surprising consensus—that performers across the popular music spectrum feel like Live Nation does not compromise and actually enhances their ability to achieve their performance goals. My research expands the body of media deregulation theory to include popular performance, and my findings break from the ideologies that dominate the field, suggesting that live music requires a new framework and ultimately a new field of research.

6. Interdisciplinary Study in American History and Community Health: *This abstract foregrounds the historical and social context of the study before describing the author's analysis and findings in the last two sentences.*

**Participation, Power, and Place: Roots of the Community Health Center Movement**

Morissa Sobelson, American Studies & Community Health (Class of 2009)

Research Advisors: Professors Edith Balbach and Kevin Irwin

The Tufts-Delta Health Center, established in the Mississippi Delta in 1965, was the forerunner of a movement that changed the way we think about health and health care. It furthered national awareness of the failure of traditional health systems to reach marginalized populations, and showed the effectiveness of bridging public health and clinical interventions at a grassroots level. It demonstrated why race, class, and power are important determinants of health, and why community is a critical locus for health care delivery and social change. Rather than pathologize poor people, it highlighted their assets, strengths, and ways of knowing, and prioritized their active involvement. The project not only managed to initiate an empowerment-based and comprehensive approach to health care, but it did so in the context of some of the most entrenched race, class, and status segregation in the country. Through analysis of the stories and archives of health and civil rights pioneers, this thesis analyzes the participatory approach they took to promoting health and community empowerment at one of the nation's first health centers in Mound Bayou, Mississippi. I use an empowerment domains framework in order to understand the application of this participatory model, sources and impacts of opposition to the center, and the ways in which these dynamics can inform contemporary health equity and reform efforts.

7. Bio-Medical Engineering: *This abstract frames the complexity of the bio-medical research with a purpose and significance that any reader can understand.*

**Light Scattering Spectroscopic Characterization of Healthy and Cancerous White Blood Cells**

Austin Hsiao, Mechanical Engineering (Class of 2009)

Leukemia is uncontrolled proliferation of immature white blood cells. The conventional method of diagnosis requires invasive and medically extensive biopsies and blood samplings of great discomfort to the patients. Since leukemia is the most prevalent type of cancer in children, where blood drawing is particularly painful and difficult, a non-invasive screening modality could improve significantly the detection and monitoring of these patients. For this reason, we performed an initial set of studies to assess the potential of light scattering spectroscopy to determine whether unique light scattering signatures can differentiate leukemic from healthy white blood cells. We acquired angle-dependent and wavelength-dependent light scattering maps of the samples in the backscattering geometry. Specifically, we acquired polarized light scattering maps from isolated cell populations along the parallel and perpendicular polarizations and computed the differential light scattering maps, representing mostly singly backscattered light. From these LSS maps, the wavelength-dependence of the biological samples, characterized by a power law exponent value, was used to quantitatively differentiate between the healthy lymphocytes, granulocytes and the leukemia cells. Therefore, these initial findings provide the basis for detection of leukemia in *in vivo* flow cytometry and demonstrate the potential of a non-invasive leukemia screening test.

8. History: *Because this study is a narrative of an historical event, the abstract focuses on the historical context. The second to last sentence summarizes the author's analysis. This abstract also provides a good example of when it's acceptable to use a quotation.*

**Constructed Utopia and the 'Culture of Deception': the Harvard Expansion towards the Charles River, 1902-1932**

Benjamin J. Sacks (Class of 2010)

Research Advisor: Felipe Fernández-Armesto

A June 11, 1997 Boston Globe article on Harvard's expansion into Allston, revealed Harvard's "secret land purchases, mostly along Western Avenue [in Allston], took place by proxy over several years without the knowledge of abutters or city officials. The university's desire to buy low apparently outweighed its obligation to establish trust with its neighbors." Although controversial at the time, the practice of secretly buying land was not new to Harvard. Between 1902 and 1932, Harvard employed this tactic in order to construct a series of large residential houses along the Charles River, away from the traditional enclave of Harvard Yard. In particular, both the University and the Harvard Riverside Associates actively employed the strawman approach to gain the necessary land: the utilization of proxy real estate agents to deceive a property owner into believing that they were selling their land to an individual with no Harvard affiliation, when in reality they were selling their land to the University. Fearful of a precipitous loss of tax income and influence, the city of Cambridge and the Massachusetts State Legislature both attempted to intervene in Harvard's land grab, but with ultimately little success. This narrative adds a new perspective upon the Harvard administration of Abbott Lawrence Lowell, shedding light on his anti-Semitic beliefs, discrimination against religious, ethnic, and immigrant groups, and the continuation of admissions policies that placed class and perceived social rank above merit. This work is currently under review by the *New England Quarterly* for possible publication.

9. American Studies & Media Studies: *This abstract explains the significance of the title of the paper.*

**The View from the Island:  
How Al Jazeera English Constructs an Imagined America**

Michael Snyder, American Studies (Class of 2009)

Research Advisors: Sarah Sobieraj and Jeanne Dillon

In Arabic, the word "Al Jazeera" means "the island" or "the peninsula." It's also the name of the first international news station based out of the Middle East, rivaling media giants like CNN International and BBC World. Despite its success and its launching of an English-language news station in 2006, Al Jazeera has come under fire by US political officials for its biased reporting and "America-hating" agenda. My paper investigates these claims of anti-Americanism by applying a critical lens towards one Al Jazeera English news magazine program called "Inside USA," launched in the run up to the 2008 US Presidential elections. Through an analysis of television media techniques, such as narration, interviews, cinematography, editing, music and sound, and graphics production, I argue that "Inside USA" crafts a simplified narrative that pits the hardworking and virtuous American people against the greedy and power-hungry elite, who are abstracted in the form of the US government, the military, and big business. Considering the binary nature of this interpretation, I argue that the label "anti-American" does not accurately reflect the journalistic agenda of "Inside USA" nor account for the alternative journalistic lens that truly distinguishes "the View from the Island."

10. International Relations & Community Health: *This abstract summarizes the author's analysis of a marketing strategy gleaned from internal tobacco-industry documents.*

**The Tobacco Industry and Islam:  
BAT's Marketing of "Light" Cigarettes During Ramadan**

Rebecca Busch, Community Health & International Relations, Arabic Minor (Class of 2009)  
Research Advisor: Professor Edith Balbach

The tobacco industry has historically attempted to influence consumer brand choice and attract new smokers through marketing strategies targeted at specific populations. The Muslim world has posed a unique challenge to the industry because of Islamic rulings against smoking. Smoking has been ruled by many Islamic religious leaders as *haram* (prohibited) due to (1) health risks associated with smoking, (2) tobacco's categorization as a drug and (3) the extravagant cost of cigarettes. In response to this perceived threat against cigarettes sales, the tobacco industry has devised a number of strategies to influence Islamic markets. Internal industry documents outline a British American Tobacco (BAT) strategy to promote low tar/nicotine ("light") cigarettes during Ramadan in order to encourage smokers to switch to BAT cigarettes during this period of religious cleansing. This marketing scheme, along with a number of other religiously linked BAT strategies, have purposefully enforced misconceptions about the health benefits gained from light cigarettes at the expense of both religious practice and consumer health. These strategies continue to promote light cigarettes internationally despite proof from industry documents that BAT is aware of the failure of light cigarette design to meaningfully reduce health risks or exposure to tar and nicotine. Knowledge of these marketing strategies is important in supporting tobacco control efforts within Islamic populations. Tobacco control advocates can help individuals to be more resistant to industry messages by making consumers aware of the tobacco industry's attitudes towards Islam and the misleading marketing strategies the industry uses to target them.

11. Creative Project: Art History, Museum Studies, & Documentary: *In addition to explaining the historical, social, and artistic context of the project, this abstract presents the author's personal motivation for creating her documentary.*

**The Closing of the Harvard University Art Museums:  
A Documentary Film and Research Project**

Sarah Cowan, Art History (Class of 2009)  
Research Advisor: Professor Eric Rosenberg

This summer, on June 30, 2008, the Harvard University Art Museums closed for a large scale renovation project, which is predicted to take a minimum of five years. As a former employee of the museum and an art history student who regularly attended these museums in my educational career, these changes and closings were alarming. In the weeks surrounding the closings I filmed the museums and interviewed employees, visitors, and community members regarding their impressions and opinions of the closings. The result is an elegiac memorial of a museum on the brink of change, and a timely study of the importance of university museums as an educational resource in a community. I will discuss my first-hand research, the virtues to making a documentary about a singular event, and my Senior Honors Thesis, which makes a connection between the closings and the wider history of museum studies and art history. The presentation will include clips from my film.