A COMPREHENSIVE EVALUATION
of the
MIT BACHELOR OF SCIENCE IN
ART AND DESIGN PROGRAM
by
Jennifer L. Most

Submitted to the Department of Architecture
in Partial Fulfillment of the Requirements for the
Degree of

Bachelor of Science in Art and Design

at the
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ABSTRACT

The purpose of this thesis was to conduct a survey that would determine the source of MIT Department of Architecture undergraduate dissatisfaction with the Bachelor of Science in Art and Design (BSAD) degree program. It was the hope of the author that this investigation would lead to a well informed proposal for improvements to be made to the overall curriculum and to the undergraduate experience.

In order to develop a thorough proposal for changes to the program, the specific expectations and frustrations of the BSAD undergraduates needed to be learned. It was determined that the best way to do so was to distribute a survey via e-mail to both current students of the Department of Architecture, as well as to recent alumni. This survey would elicit information from those polled that would be used towards the development of a proposal for improvements to the undergraduate program.

Of the 96 BSAD alumni and 63 registered Course 4 undergraduates polled, 28 responded to the evaluation, a response rate of 18%. This response produced some 100 pages worth of vital and telling information with regards to which classes students found most and least enjoyable, most and least significant, most disappointing, or most needed. They also shared a number of comments with regards to the Department of Architecture in general.

Many of the opinions expressed via the survey results differed greatly from one another, thus making it impossible to propose an easy fix-all for the program. Nonetheless, the information shared was very helpful towards the formation of a comprehensive series of suggestions for improvement to the undergraduate BSAD experience at MIT.

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Thank you to all.
1 INTRODUCTION

After nearly four years of working towards a Bachelor of Science in Art and Design at the Massachusetts Institute of Technology, it was natural to take a moment to evaluate the time and effort that had been invested in the pursuit of this degree. During the course of this reflection, it became apparent that many of the frustrations I felt with regards to certain aspects of the MIT BSAD program were often matched by my fellow undergraduates.

Initially, I desired to propose a series of changes to the curriculum that might serve to improve undergraduate satisfaction. However, I realized that before any proposals could be made, I first needed to gain a better understanding of the source of the uncertainty. To do this, two key questions needed to be asked: 1) What is it that motivates students to become a part of architecture at MIT? and 2) What do Course 4 undergraduates generally hope to gain from their education here?

On February 17, 2000, a survey was released to current undergraduates and recent alumni of the undergraduate program. This survey asked seven questions, the purpose of which were to give insight into the expectations and frustrations of Course 4 undergraduates, past and present. It was my hope that the ensuing responses to the surveys would help to shape a better informed proposal for improvements to the Department.

Students at MIT come to this university with the expectation of receiving one of the most prestigious and challenging education in the world. It is vital that all students who graduate from this institute feel that they have been given every opportunity to obtain this highest quality of education. By reevaluating the needs of the undergraduates of the MIT Department of Architecture, the administration can help ensure that no student will be disappointed. It is my hope that this investigation will help spark not only an open dialogue within the Departments of Architecture, but perhaps lead to positive changes for the entire undergraduate experience.

2 THEORY

The purpose of this investigation is to determine the source of MIT Department of Architecture undergraduate dissatisfaction with the Bachelor of Science in Art and Design degree program. This investigation should lead to a well informed proposal for improvements to be made to the overall curriculum and to the undergraduate experience.

In order to develop a thorough proposal for changes to the program, the specific expectations and frustrations of the BSAD undergraduates needed to be learned. It was determined that the best way to do so was to write and distribute a survey via e-mail. This survey would ask specific questions about the curriculum and as well as general comments with regards to the MIT architecture experience. The survey would ask what students thought were the most and least enjoyable classes, the most and least significant classes, what if any classes did not meet expectation, and what if any classes did they believe should be added to the overall curriculum. A survey of this type would thus not quantify how students regarded the BSAD curriculum, but rather elicit well thought out detailed answers that could be used to directly propose change.

The e-mail format for the distribution of the surveys was chosen for several reasons. Because e-mail does not involve the physical handling of any material, it is not as easy to misplace the survey upon arrival. Along the same vein, an e-mail is considerably easier to reply to than a survey that needs to be written out.
by hand and would thus elicit more responses at a faster return rate. In neither case, however, is there a
guarantee that the survey would reach an intended recipient. An e-mail survey, however, also provides no
additional cost for either the respondents or for the person running the survey, although the option to
return the completed surveys via traditional mail was offered. Lastly, as I believed it was necessary to
poll alumni as well as current undergraduates, an e-mail distribution was determined to be the only
possible way that all could be potentially reached.

One trend that was apparent to the author before the research was begun was that students’ opinions with
regards to the BSAD program develop a lot over the course of their time in the Department. It was thus
expected that after spending time outside of the university, alumni would have much altered opinions with
regards to program as well. The alumni perspective on their scholastic experience was thus determined to
be invaluable to the objectives of this research. A cap was put on polling alumni that graduated in June of
1995. The BSAD program, as well as the field of architecture itself, changes at a fairly high rate. Thus
the five years was determined to be substantial enough that the students would still relate to the current
program while also providing insight into their experiences in the professional world.

The author is aware of the limitations of the survey she proposed to use towards positive change. It was
anticipated that the response to the surveys might be low. It was also not surprising that many opinions
cited would differ greatly from one another. Thus, the significance of this project was somewhat
restricted to informing the Department of Architecture faculty and staff to some of the expectations and
frustrations expressed by students who had at one point passed through the BSAD program. Based on
commonly discussed issues and a number of the author’s personal beliefs, a series of changes and
adjustments to the overall workings of the BSAD program were indeed proposed.

3 EXPERIMENT

3.1 The Initial Survey

The driving force for this thesis was the collection of the survey responses with regards to how current
students and alumni view the MIT Bachelor of Science in Art and Design experience. To gather this
information, it was determined that a survey ought to be written and distributed to current undergraduates
in the BSAD program as well as to recent alumni. A cap of 5 years, or a graduation date of June 1995,
was put on the alumni polled. Both the alumni and current undergraduate surveys were the same,
although the introductory e-mail varied somewhat to relate to the persons being polled. The surveys
consisted of a series of questions that elicited responses with regards to the curriculum and comments
with regards to the overall experience.

The most important goal in writing the survey was to create questions that called for well thought out
responses. The inquiries should not be dependant on quantification, but rather on fully developed
opinions. An additional challenge in writing the survey was to provide unbiased questions that would not
elicit the answers already preconceived in the author’s own mind.

3.1.1 The Survey Questions

1) Of the classes you have completed within the architecture department, which class/es did you most
enjoy? Please explain.
2) Of the classes you have completed within the architecture department, which class/es did you find most significant to your architectural education? Please explain.

3) Of the classes you have completed within the architecture department, which class/es did you least enjoy? Please explain.

4) Of the classes you have completed within the architecture department, which class/es did you find least significant to your education? Please explain.

5) Of the classes offered through the architecture department, were there any classes you expected to be significant to your education that did not meet your expectations? If so, how might they have been improved? (if you are a freshman or sophomore, feel free to answer which classes you anticipate to be most significant)

6) Is there any subject matter not currently offered through the architecture department that you would like to see become part of the BSAD curriculum? Do you feel these courses should be mandatory or electives?

7) Please take the time to write out any other comments you may have about the curriculum as a whole or about specific courses offered. Any suggestions or ideas would be most appreciated.

3.1.2 Email to the Undergraduate Alumni

Through the Massachusetts Institute of Technology Alumni Office, a temporary mailing list was created. This mailing list consisted of the e-mail address of 96 undergraduate alumni from the Department of Architecture. These alumni ranged from the graduating class of 1995 to the graduating class of 1999.

The address used for the polling, “mittemp@mitvma.mit.edu,” is no longer in service.

LIST DATA PULL: Undergraduate Architecture (course 4) alumni from the classes of 1995 to 1999.
LIST EDITORS: Katha Washburn<katha@mit.edu> and Jennifer Most <jlmost@mit.edu>
ERRORS to: mitalum@mitvmx.mit.edu
LIST STATUS: Temporary

The introductory statement on the alumni e-mail read as follow.

"Hello alumni. My name is Jennifer Most and I am working on an thesis that will evaluate the MIT undergraduate architecture curriculum. You may remember how while a student here in the MIT Architecture Department, there were very few opportunities for you to share your opinions on your education with the Department faculty. Thus, the objective of this survey is to get a sense of what parts of the BSAD curriculum work and what do not according to the student body.

In order to get a well rounded point of view, I realized that it was just as important to pool our most recent alumni on this matter as it would be to question current undergraduates. I can't stress enough how important the results of this survey may be, and I beg for your cooperation. The questions are few and general to allow much room for elaboration. Please read all 7 questions before you answer any, and please take your time to answer in as much detail as you can."
If you can't remember specific course numbers or titles, don't worry. Just do the best you can. Please have your responses in by March 3rd. You may respond either via e-mail to jlmost@mit.edu, or print out your survey and mail it to:

Jennifer Most  
362 Memorial Drive  
Cambridge, MA 02139

All completed surveys will remain completely confidential.”

3.1.3 Email to the Undergraduates

The MIT mailing list “archunder@mit.edu” is comprised of the 60 plus undergraduates who are currently students of the MIT Department of Architecture. This list exists for the purpose of mailing to Course 4 undergraduates e-mails that are of general concern to them. The “archunder@mit.edu” list was thus used to distribute the e-mail survey to the current Department undergraduates.

The introductory statement on the undergraduate e-mail read as follows:

“As an architecture undergraduates, there are very few opportunities to share our opinions on our education with the Department faculty. The objective of this survey is to get a sense of what parts of the BSAD curriculum work and what do not according to the student body. I can’t stress enough how important the results of this survey may be. Please read all 7 questions before you answer any, and please take your time to answer in as much detail as you can. The questions are few and general to allow much room for elaboration. You may either respond via e-mail to jlmost@mit.edu, or print out your survey and mail it to:

Jennifer Most  
362 Memorial Drive  
Cambridge, MA 02139

All completed surveys will remain completely confidential.”

3.2 Reaction to Initial Survey

On Thursday, February 17, 2000, the first of the evaluation surveys was first released via e-mail to the current undergraduates and recent alumni of the BSAD program. Because the initial response rate was low, it was decided that a reminder e-mail would be sent on March 2, 2000. Because the temporary alumni mailing list had been disbanded, the reminder was sent to the undergraduate list alone.

3.2.1 Reminder Email to the Undergraduates

“Hi everybody. I first wanted to sincerely thank the (very) few of you who responded to the first mailing of this survey. The results of this survey have the potential to be extremely important in the way the undergraduate program continues to be administered. That is why it is so important that you all participate, whether you are 100% pleased with your education or 100% disappointed. The surveys are simple. You can be as vague or as specific as you like. Please take a couple of minutes right now to fill one out. Thank you. Sincerely,
All completed surveys will remain completely confidential."

3.3 Review of Other Evaluations

After the initial compilation of the completed survey information was reviewed, it was noted that the majority of the responses were negative responses. In an effort to understand if this phenomenon was due to the nature of the survey itself or in fact indicative of general sentiments towards the Department of Architecture BSAD program, a secondary review of specific courses within the curriculum was conducted.

Each year at the close of the term, the MIT Humanities Arts and Social Sciences Office conducts an evaluation of all the HASS classes offered by the Institute. Students are asked in class to fill out surveys that are mainly quantitative. The average response rate to these in-class surveys is approximately 51%. A review of these surveys was also conducted. The limitations of these evaluations, however, is that many of the Course 4 courses are in fact attended by students of other majors. Thus many of the responses on these evaluations come from students to whom these classes are merely electives, not core courses of their education.

Each individual department at MIT is also encouraged to conduct their own separate evaluation of the courses they offer to their undergraduates. An attempt was made to review the Department of Architecture evaluations as well, although very few could be found that related to undergraduate classes.

4 RESULTS

On Thursday, February 17, 2000, the MIT Bachelor of Science in Art and Design (BSAD) program evaluation survey was first released, via e-mail, to the current undergraduates and recent alumni of the BSAD program. Within 24 hours, the first of the completed surveys was returned. Two weeks later, on Thursday, March 2, 2000, a reminder e-mail was distributed to the BSAD undergraduate list, which itself prompted a fair number of returned surveys. After approximately another two weeks, responses stopped coming in.

Out of the 96 BSAD alumni and 63 registered Course 4 undergraduates polled, 28 responded to the evaluation, a response rate of 18%. This low response rate was not unexpected, and it wasn’t altogether disappointing either. It takes a person with rather strong and developed opinions to take the time to fill out a survey such as the one released. This is especially true of alumni, many of whom have been out of the program some four or five years. As a result, the 28 people who did respond to the e-mail together produced some 100 pages worth of information.

An initial review of the completed surveys revealed that the majority of the responses spoke negatively about the MIT BSAD experience, specifically the required courses 4.206, 4.605 and 4.301. Whereas the survey I produced was written with the intention of eliciting as many positive as negative answers, it is the nature of people to focus especially on the negative. This is particularly so when the passing of time is an issue. Good memories tend to fade while the bad ones remain fresh. It was for this reason that I went on to review the MIT Office of Humanities, Arts, and Social Sciences (HASS Office) evaluations and the Department of Architecture course evaluations as well. This second set of evaluations, by virtue of polling students at the very conclusion of a class, were expected to express less of a negative bias than
the e-mail survey. An extensive review of these additional surveys showed that whereas there was an increase in positive comments made, many of the negative comments were reiterated.

With regards to the survey results, it is important to note that many of the students polled made reference to specific professors and courses in the Department. This bears some significance on the results due to the fact that many of the courses are taught differently by different professors from year to year. In addition, some of the alumni polled attended classes in the Department of Architecture some nine years ago. Whereas the core curriculum may not have changed very much over this span of time, there have been significant changes with regards to courses offered and faculty offering them. Thus, please keep in mind that many of the courses commented on in terms of teaching staff, or that are no longer available in the Department, should be assessed for what these comments offer in a more general sense of how classes ought to be taught, or whether specific ones should be offered at all.

For a more detailed tabular view of the responses to the evaluation survey, please visit Appendix A (Pages 39 - 62).

4.1 Results of the MIT BSAD Program Evaluation Survey

4.1.1 Survey Results for the Department in General

Although most of the questions asked on the e-mail survey requested responses that dealt with specific classes in the curriculum, many students responded more generally, many commenting on the overall undergraduate experience within the Department itself. Among the responses of this type were complaints that many of the professors in the Department just do not take undergraduates seriously, that they don’t really believe that undergraduates may very well be committed to one day becoming practicing architects. As one student wrote, “I recognize that MIT’s grad program is top notch, and attracts a certain type of student, but by the time I got to Level I, I felt that in general, most of the design professors considered teaching undergrads a waste of time…” As a result, many undergraduates feel unprepared to start practicing architecture, or even to continue on to graduate school. In the words of one student, “not to be too negative, but [working in the field has] made me realize just how unprepared I will be in an architecture job coming out of college.”

A common survey response that referred to the whole of the Course 4 department was the opinion that there is not enough follow-up to the various required classes of the BSAD curriculum. After taking introductory level classes, students complained that they were seldom asked, or even encouraged, to tap into the information learned from these early classes. Students are very rarely prompted to draw from these skills and apply them in studio, for example. In the same way, students complain that there are not enough advanced level courses available to take as follow-up to the introductory ones. Many courses stand alone in the curriculum, and are thus treated as isolated learning experiences. One alumni writes “In summary, the current BSAD curriculum…is too theoretical and (ironically) unstructured. The classes (particularly studio) should reflect a definite progression of skills rather than an amorphous learning experience.”

Many students complained of the entry level classes themselves, citing them as not enough of a challenge. One student spoke through her survey directly to the administration, writing “I think a lot of my classmates feel like total underachievers. I have a …4.9 GPA and I can’t tell you why or what I have done to deserve this. [That should bother someone]. Doesn’t it bother you that a supposedly stellar student feels completely unqualified to move forward in this world?” This is not to mention how frustrated a large number of the respondents felt with regards to the student body composition of their required courses. Many people complained of how the BSAD curriculum core courses are divided among
Course 4 majors to whom the subject matter is both vital and interesting, and other Institute non-majors who tend to care solely about getting the appropriate MIT credit.

One point that came across unified was the general agreement that having a great professor can make or break any class. This was expressed both in terms of a professor’s ability to be a motivating teacher, as well as a teacher's respect for his or her students. MIT sets up many rules to protect the physical and mental health of its students. Among these rules are included ones that encourage undergraduate participation in sports by disallowing classes to extend past 5:00 PM. A number of students expressed frustration with the blatancy with which this rule is broken by the studios. Another rule that is intrinsic to the sanity of MIT students is the way credit units for a course are supposed to correspond to the number of hours spent both inside and out of the class. Again, survey responses indicated disappointment with how this rule is all but ignored by the studios, which at maximum grant 21 units of credit, but take up far more time to do even the minimal amount of work required.

In term’s of a professors, ability to teach, as one student wrote “…I would have to say that to me, the teacher makes a big difference. There are classes that you like b/c of the material, what’s being taught or just b/c it’s something you like doing. But a good teacher can make even the most boring material digestible or even fun.” This type of opinion was very commonly expressed, as evidence by another student who wrote of studio “The architecture class I have enjoyed most so far is 4.126 – Architecture Design studio Level I. however, this is so only because the professor has made it enjoyable and rewarding.” On the other hand, one student complained of the 4.301, Foundations in the Visual Arts, citing “Part of being a (good) teacher is to find a way to extract the talents any student possesses, and show how to use those talents effectively. The teachers I had [for 4.301] were too busy [to care] whether anyone was learning anything.” And then there is 4.401, which with regards to the professor behind the course, was written up as both the best of the Building Technology classes, “I also enjoyed 4.401 because [the Professor] was the single most fabulous teacher I have ever had,” as well as the worst, “The information I knew was important, but it was presented in a boring manner.”

4.1.2 Survey Results for the Studios

Through their survey responses, many people recognized the various Course 4 studios as both the most enjoyable classes, and overwhelmingly as the most significant. It was repeatedly said that the studios are the next closest thing to really practicing architecture. Among the reasons people cited for thinking so highly of this group of courses was enjoyment of the challenge that design work presents. Students admitted that whereas the studios are a lot of work, they recognize that the time and effort they demand are needed for a better understanding of the design process. Students also cited enjoying the way studios bring classmates together in a way that they can really learn from one another. Students also recognized that when they are adequately prompted, studios become the place to take everything learned in other classes and apply that knowledge to a central cause. Thus, when an intelligent, motivating and supportive professor is thrown into the mix, studios were described in the most positive of lights.

Although the studios as a whole received a great amount of positive feedback from the evaluations, they were not entirely without their criticism. For one, a couple of students spoke out about their frustration with the lack of guidance offered with regards to the design process. As one student wrote “There were certain critical questions that seemed to never get answered – Is this design good/bad? Do my spaces make sense? Is there something I am forgetting, or doing too much of? Should I be doing less models, more sketches?, etc. This kind of guidance and assurance I felt was missing in my studios, and in the end, it makes me wonder how significant these classes were to me.” And as the studios progressed, some complained that a great disparity among skills taught by different professors, too, served as a source of frustration.
Other criticism of the studios in general were that they were not nearly realistic or practical enough. Several people, alumni especially, expressed this particular opinion, one person writing “…[The] fact was that, my off campus job often had little to do with the fantasy work at school. I think classes that teach about contract negotiation, bidding process, AIA documents, construction documents, and construction administration should be mandatory…It’s a shame that studio projects so often dismiss very real issues like budget, and communication skills with clients.” Another wrote “[Budget constraints] should be an issue in the design problem. I think [studio] projects would look significantly different if you make students really think about client’s needs.” These requests to incorporate more reality into the studio curriculum make up the majority of studio improvement suggestions. But in general, the negative comments were minimal for the studios, or at the least were mostly directed at specific professors of individual studios offered in the past.

4.101, Introduction to Architectural Design I, was frequently lauded in the survey results as a great hands on experience, as well as a lot of fun and a good class to wet ones feet with the idea of thinking like an architect. Not all the survey results, however, supported these comments. One major concern expressed was that much of the efforts of this class go into the physical act of making a model, with little emphasis placed on the significance behind the elements of the design. To quote one student, in 4.101 “[there] are some basic architectural concepts…but as a whole my knowledge of architecture was not enriched by taking this class.” Other students complained that the course was a mere glimpse into the design process, not a well rounded view, especially in terms of the limited materials used. Whereas one student did appreciate using materials that closely simulated real world building materials, others criticized this course for not introducing them to any of the materials they would go on to use for models in later studios.

Not much was written on the topic of the 4.104 introductory studio, Introduction to Architectural Design II. What did come through from the survey results was a general disappointment with this studio in particular. Although one student expressed they felt this class was significant in the way it “provides primary techniques of design,” most others commented how this course does not encourage students to develop any skills, techniques, or personal approaches to design. Many people felt they were forced to learn pedantic details like ADA compliance, at the expense of developing larger design capabilities. Other criticism for this class centered around the fact that it is supposed to be the main drawing class of the studio sequence, yet basic drawing skills are never really touched upon. Students are taught the technical aspects of cutting a plan or section, but never skills such as how to get a plan or section to really represent what you want to express, or even how to use sketches as part of the design process. Many students expressed their frustration, too, with the free form drawing portion of this class, claiming the projects were trite, and that the exercises in general catered to those students who were scared to draw, rather than just focusing on the teaching of the skills.

Whereas the studios in general were considered the most significant courses in the curriculum, of them, Level I, both 4.125 and 4.126, were most commonly cited. Students generally felt that the Level I studios allowed for the most personal growth in terms of developing design skills. This development included providing the first real steps away from the most basic forms of design. As one person wrote, “I think my Level I studio…taught me the most about my personal style of design, which I really enjoyed. For the first time, I felt as if I was truly being ‘the architect’ as opposed to my teacher being the architect and me the student.” A number of students expressed appreciation for the amount of depth provided by Level I as compared to the introductory studios, citing the encouragement to be proactive about considering micro and macro site conditions as some examples. Many also felt that in Level I they finally began learning practical studio skills, such as problem solving and presentation skills. On a down note, however, it was in reference to Level I that the most students fingered out individual professors for not being understanding of MIT’s out of studio demands, or not realizing that the undergraduates can be as committed as any to becoming professional architects.
Other studios that were briefly mentioned by students on the evaluations included an appreciated for Level II for the way it exposes undergraduates to graduate students and graduate student life. One student lauded the workshop he took his most significant course for the chance to use his design skills toward a practical application.

4.1.3 Survey Results for Building Technology (BT)

Although they were not often cited as the most significant courses, many survey responses did admit that they understood the importance of the Building Technology subject matter. As written by one student, "I think 4.440 and 4.401 taught me the most about practical architecture, or at least the kind that I want to do, because you need to know the basics of how building works before you can design it..." At the same time, many students did express that the BT classes ought to have been taught in such a way that alluded to this significance. As mentioned previously in this thesis, many students have expressed the belief that a great professor can make all the difference in the world when it comes to making a great class. Nowhere did this idea seem to hold more truth than of the Building Technology department, where visiting professors teaching core curriculum classes for one semester alone is more the rule than the exception.

A majority of the students who commented on the course 4.401, Introduction to Building Technology, cited it as the most significant class of the curriculum. But nearly every time it was mentioned in this way, the professor was noted as the reason why. For example, one student who spoke highly of this course wrote "[The Professor] was very good at relating the otherwise boring material to projects that he had worked on in real life, which actually made the material feel much more interesting..." But on the other hand, the professor is again the center of discussion in cases where the course was put down, such as with the comment "...The professors were bad, the organization of the class was messed up, despite the interesting material covered, the entire class ended up complaining about the course throughout the term." Perhaps some cohesion with regards to having the same professor teach for more than one semester would serve this class best.

A desire that the BT classes be less hypothetical and more mathematically stringent was an extremely common suggestion. As expressed with regards to the studio classes, MIT students appreciate being challenged. One student made the claim that many of his classmates supplemented the course 4.440, Basic Structural Theory, with Course 1 (Civil Engineering) structures courses, because they felt the Course 4 ones were not rigid enough. Many said that the BT courses the way they are taught now leave students with very little understanding of structures. Although thoughts as to what changes needed to be made varied, many agreed that the program ought to be more thorough about helping students realize the practical application of the concepts towards architecture. One student even suggested separating the BT program into courses that teach only theory, and others that focus on the calculations and application of the concepts. Students generally appreciated learning the tangible and practical skills from the BT classes. Specifically, students appreciate 4.411, Building Technology Laboratory, for teaching how climate, lighting and ventilation effect design, and the other BT classes for teaching how to draw details, and generally about how buildings work. One student did cite the BT classes as great preparation for the typical detail work interns are asked to do in professional offices.

In general, students appreciated the BT department’s hands on approach to learning structures and doing lab experiments. Most agreed that this method was far superior to watching words and numbers being put on a blackboard. As one student wrote "...The labs in 4.401, although they seemed a little trite at the time, introduced common building materials through hands-on experience – I don’t think there’s a better way to learn about the building properties of concrete without trying to mix and pour it yourself.” However, there was also some negative feedback to this hands-on approach. For example, whereas the
course 4.411 utilizes a very hands-on approach to data collection and tests, the projects were commented multiple times as being extremely boring and not very informative. As one person wrote, "[The] biggest reason for not enjoying classes: classes when I feel like the amount that I'm actually learning is heavily outweighed by the time spent. For the amount of time spent in 4.411 compared to actually learning, its not worth it."

4.1.4 Survey Results for Visual Arts (VA)

Of all the discipline streams, the Visual Arts department received by far the most negative response from the surveys, and very little positive response altogether. Many of the complaints focused on the fact that the VA required course, 4.301, Foundations in the Visual Arts, like the HTC required 4.605, was an MIT Humanities, Arts, and Social Sciences distribution course. This meant the class was often filled with students with no interest in the subject matter itself but were only interested in satisfying an Institute requirement without having to write any papers. Many Course 4 students thus complained that this in itself hurt the class as any interesting discussions which might have occurred were generally stifled by lack of interest.

The most common of complaints made against 4.301 and the Visual Arts department, however, was that the classes themselves contain very little substance, and that their relation to the rest of the BSAD curriculum is extremely elusive. Some people cited these complaints as reasons why 4.301 was not enjoyable, others as reasons for what made the course the least significant of their education.

Because so few students could see the relevance of 4.301 to the rest of the BSAD curriculum, people used this to justify why so many projects were often done last minute or were not very good. Many admitted to resenting the time spent on this class as time that could have been better used elsewhere. Although some students expressed their respect for the minds and works of the visual artists/professors, many others spoke of the impression that the professors did not seem to care whether students were actually learning while taking their class. Many people reacted to their disappointment with the VA arts program by suggesting that more practical visual art skills would be better for the curriculum, rather than courses that stress unconventional thinking. A large number of students suggested more fine art classes, such as drawing or painting. As one student wrote, "...I'm also very disappointed that there is not a single drawing class in this whole school that is offered to undergrads, or especially to architecture undergrads. Don't we [have to] learn how to sketch an draw?" One reason cited for needing more traditional art courses was that people really learn to understand what they see around them better when they have the ability to recreate what they see. Another wrote about how people can better express themselves and their designs when they fully understand the capabilities of sketching sections, elevations and even perspectives. One alumni survey supported the notion of bringing traditional art courses into the curriculum by saying, "I don't know if they are still offering a pure drawing class, but what a brilliant class! I would recommend that free hand drawing and/or painting be mandatory to all students."

4.1.5 Survey Results for Computer Courses

The debate over what kind of computer course should be required for MIT architecture undergraduates was very divided among the surveys. Many commented that they did not believe MIT education money should go altogether towards the learning of computer software, that computer error frustrations, not enough computer resources, and impractical software programs make these classes useless. Then there were other students who wrote "I hate to be overly pessimistic, but virtually no class other than the AutoCAD class has been useful to me. I honestly feel like I could have gone to a trade school for a semester or two and taken AutoCAD classes and I would be exactly where I am today in my career (and $20K less in debt)." A number of students suggested that there ought to be more computer courses
offered, especially at such a technical school, and that perhaps these courses themselves should make up a field of concentration. For the most part, students agreed that AutoCAD is a necessary skill in the professional world, but they debated whether it was necessary that it be taught as part of the MIT BSAD curriculum.

The one required undergraduate computer course, 4.206, Visualization, elicited very few positive comments from the alumni and students polled. Among them, a couple of students remarked that the course provided a good background for further learning of computer design techniques. But the majority of the responses indicated that students did not find the software, Alias, useful in the least. Beyond that, students also expressed displeasure with the lectures and the lab as well, citing that they thought the course content was a great idea, but that the course itself was poorly executed. A number of students commented that after the first couple of weeks of the semester, the nurturing of visualization skills, through small exercises and the lectures, just ended. As one student wrote, "Visualization is a totally needed skill for architecture to help portray and present effectively what is in our heads. [The Professor] taught none of this..." Although many people did understand the importance of a visualization course, the students felt that focusing the majority of class energy on one computer software package that carries little relevancy outside the classroom very much took away from the significance of the course.

Because so many students were disappointed by 4.206, many suggestions were made as to how to improve it. Most of those suggestions focused on the idea of improving the class as a computer course, rather than a visualization one. Many suggested making the software learned in this class more practical. Many students who made suggestions for "classes that do not currently exist" often made the case for a computer course that would introduce students to software that would include AutoCAD, PhotoShop, PageMaker and FormZ, and other commonly used design software. In addition, a number of requests were made for a Course 4 undergraduate course that would introduce them to the many pieces of computer hardware the department owns, from laser cutters and scanners, to plotters, digital cameras and slide scanners. Many students complained that these tools were never really explained nor made available to them.

Although many students who took 4.206 as a required course requested AutoCAD be put into the curriculum, many of the alumni spoke poorly of this idea. A number of alumni commented on an AutoCAD class that had been taught in the past, complaining mainly about its execution and about the fact that the course itself was too much work. But this was just the beginning of the debate about teaching AutoCAD to undergraduates. Where one alumni spoke of the computer program as an absolute necessity to learn and the one thing that can be used in the real world as a marketable skill, another claimed that AutoCAD is a skill that can be picked up entirely outside of the class, and was thus a waste of time as an MIT course.

Other alumni commented on the graduate course 4.203, Geometric Modeling, which at one point was taught to undergraduates as well. Alumni who mentioned this class spoke of it as the least significant course of their education, citing that it proved useless in a professional setting or that it was never very helpful in the studios either. However, a couple of undergraduates who had not been required to take this course spoke highly of the current version of the class, especially when comparing it to 4.206. As one student wrote, "[The least significant course was the] lab part of 4.206. When the [heck] am I ever going to use Alias in architecture? I really resent having had to learn it, especially when the graduate versions of the course, [4.203]...uses AutoCAD and other programs that are actually applicable to the professional world of architecture."
4.1.6 Survey Results for History, Theory, and Criticism (HTC)

Many students expressed support for the History Theory and Criticism courses within the Architecture department, many citing these HTC courses as both the most significant as well as the most enjoyable. A number of students wrote of their appreciation for the way the theory and subject matter of many of the HTC courses really broadened their understanding of architecture. As expressed in one of the surveys, “4.614 was great because almost all the material was new to me. I think MIT undergrads would benefit from learning more about non-western architectures.” Those who mentioned the HTC classes also expressed their interest for the respect of the intelligence of the professors and their ability to really inspire their students. As one student wrote, “The professors in HTC especially are some of the most intelligent, eloquent professors I have ever had at MIT. They are always concerned with interaction, and with developing an atmosphere of academia and a forum for discourse.” However, a couple of students complained that Course 4 students are never urged or really encouraged to explore other HTC beyond the ones required. In fact, as written by one student, “I think there is a serious problem in terms of educating undergrads about architectural history. There is this attitude that we’re just supposed to have picked it up somewhere, somehow…”

The one required undergraduate HTC course, 4.605, Introduction to the History and theory of Architecture, itself was not the subject of any positive feedback. Much of the criticism for 4.605 was directed at the professor of the course. Students did recognize that he is a knowledgeable professor of above average intelligence. They more frequently, however, expressed their dislike for his method of teaching this class, a format of temporary memorization with little or no analysis. As one student wrote, “The only purpose of the class was to test your memory, like flash cards…If the class was more geared towards the learning of how to analyze the history of architecture…it would have been wonderful.” Students cited that the class was for the most part boring and monotonous, the paper topics generally unrelated to lectures, and the experience thus ultimately a waste of time.

Other negative feedback concerning 4.605 was generally centered around the course curriculum. Whereas the majority of responses expressed that the curriculum was too broad to be fit into one semester, many of these same students lamented that modern and contemporary architecture is not covered in this class. These responses elicited many suggestions, both with regards to how to improve 4.605 and with regards to perhaps supplementing it with other courses in the curriculum.

By far, the most popular suggestion in terms of how to improve 4.605 was to split the curriculum into two or more semesters, thus allowing more class time for theory, a more in depth teaching of the history, and some discussion of recent architecture. Students supported the idea that lending more time to the discussion of the various issues concerning architecture of both the past and present would improve the quality of the Department’s introduction to history and theory. A common complaint made was that undergraduates tend to leave MIT with no real opinions on architectural issues. As one student wrote, “I think the modern arch. classes the grad students take would be highly beneficial to undergrads. I think the faculty should push to encourage students to really consider architecture.” In terms of HTC courses that could be added to enrich the undergraduate experience, one person suggested that students would benefit greatly from a seminar to be purely dedicated to “critical discourse” and theoretical discussion. And a few suggested that even if 4.605 were not to be split into more classes, other HTC courses themselves, from a modern architecture course to art appreciation, should become part of the required undergraduate curriculum.

4.1.7 Survey Results for Course 4 Electives

The survey feedback surrounding the various electives offered by the MIT Department of Architecture was generally quite positive. Students expressed their appreciation for the opportunity the electives
provide for students to develop their individual interests and talents for various skills and techniques. One student expressed her appreciation for 4.341, Introduction to Photography, for giving her the ability to take photos of her own models. Others cited their appreciation for these production rather than design oriented courses saying they tended to be more relaxing and enjoyable than many of the mandatory courses. A number of students commented positively on the quality of the professors that teach these specialty courses, complimenting the way one's appreciation for a subject matter can affect one's teaching style for the better. If nothing more, students appreciate the way taking a variety of architectural electives can enhance an education by lending new perspectives on various topics and new skills to enhance design methods and ideas. One student commented on the HTC electives writing that these courses “brought up another dimension of architecture that I feel is lacking in this department in general.” And another wrote “These classes have given me a whole new perspective on design, allowing for a new way of thinking, the significance of which has hardly been matched in any studio class.”

Many of the students who replied to the survey with additional class suggestions cited IAP as an appropriate time to offer some electives that are not currently offered, from a portfolio design course, to an AutoCAD course. A few students took the time to comment on the IAP Internship program offered to the undergraduates. Many students who expressed their desire to see the BSAD curriculum focus more on the professional side of architecture very much appreciated this program as the only true glimpse into the real world as undergraduates. In the words of one student, “…[In] terms of real world stuff, I think my internship over IAP taught me the most about real life architecture. Along with that, I learned in the firm that perhaps design is not nearly as much a part of an architect’s life as academia implies, which was eye-opening for sure.”

Along these lines, many students suggested that the BSAD curriculum should flat out offer courses about the professional practice that would include learning about budgets, the costs of construction and construction methods, and about working with clients. As one student wrote, “Design, drawing, history, materials, tectonics, theory, people skills, economics, management, legal issues, the list goes on. The more the curriculum is willing to expose the student body to all of these factors, the better! In return, you will have students who will quickly realize whether architecture is suited for themselves and for those who do pursue, they can feel confident when walking into the professional setting of architecture.” One student suggested some kind of seminar where students could work with outside people acting as “clients.” Another suggested that communication skills be incorporated into the studio curriculum. And a couple of people even suggested that interior design courses would be a great asset to the undergraduates, especially in terms of preparing students for the professional world.

One student brought to the survey the idea that there is a great lack of stress towards taking on an architecture Undergraduate Research Opportunity (UROP), and that in fact there are very few of these offered. The UROP program is a large part of the MIT community, and it was suggested that perhaps Course 4 students should be encouraged more to participate in these as well.

4.1.8 Survey Results for Out-of-Major Electives

A number of students commented on the idea that taking courses outside the Department of Architecture did enhance their education in several ways. As discussed in section 4.1.2, some students took additional structures courses in the Civil Engineering department to supplement the ones required from Course 4. In other cases, several students expressed their appreciation for the relationship between the Department of Architecture and the Department of Urban Studies and Planning, commenting how taking classes in the Course 11 department did generally enrich the BSAD curriculum. These students expressed their appreciation for the insight Course 11 gave them with regards to critical and proactive thought towards urban issues that play such an important role in architectural thinking as well. As one student wrote, “The
urban planning class (4.250J/11.001J) probably changed the way I thought about architecture more than any other class I have taken. It forces you to place buildings in their greater social and historical/cultural context…” In terms of one particular Environmental Psychology course, students expressed their appreciation for the encouragement to explore the effects of the environment on the human psyche.

4.2 Results of the HASS Office and Architecture Department Course Evaluations

MIT has supported for many years the evaluation of its classes, where at the conclusion of each term, evaluation forms are distributed to be filled out confidentially by each student. Generally, each academic department is in charge of running their own course evaluations. In addition, the MIT HASS Office runs a service that provides separate evaluations for all of MIT’s Humanities, Arts and Social Science courses. Since the majority of Course 4 classes are in fact HASS courses, one would expect that each class would be doubly evaluated. But in fact they were not.

Up until 1996, the HASS Office itself would gather the information from their completed evaluations and compile them into succinct MIT HASS Evaluation Guides. Once this practice was put onto the MIT website in 1996, detailed qualitative analysis became harder to find. Fortunately, the individual student evaluation forms were easily located in the Course 4 Main Office. The Architecture Department evaluations forms, on the other hand, were not as easy to locate. In fact, although the graduate student Department course evaluation forms have for years been compiled into an easy to read guide of their own, there is no record of the same having been done for the undergraduate course evaluations. An inquiry into locating the evaluation forms only uncovered forms for one or two individual classes for the years 1996 through 1999.

When reviewing the various course evaluations and evaluation forms, it became apparent that whereas positive commentary was in fact more commonly expressed in these evaluations, many of the negative opinions expressed were indeed reiterated throughout. For a more detailed view of all the reviewed notes, please visit Appendix B, (Pages 63 - 66). It is also important to note when reading these evaluation results that due to the fact that many of the Course 4 courses are HASS and HASS-D classes, they are open to all MIT students. Thus, many of the responses could have been made by students outside of the Department of architecture. Please note that the average response rate for any given course evaluation was approximately 51%.

4.2.1 Evaluation Results for 4.605

The HTC required course 4.605 has existed much longer than the other courses the second evaluations reviewed. Thus, the most commentary by far was available for this class. Whereas this course received no positive feedback from the e-mail survey, both the professor and the course enjoyed an increase in good favored commentary through the HASS Office evaluations, both from non-majors as well as Course 4 majors. Among the positive commentary were such comments as “This was a good and interesting class for non-architecture majors. I enjoyed it.” One student wrote “[The professor] is a high quality professor, the kind you would expect from an institute like MIT.” But another more exasperated student wrote merely with regards to the instruction of this course, “There has got to be a better way.”

The majority of the negative feedback that was reiterated from the e-mail surveys to the HASS surveys centered on a couple of points. For one, many still felt that 4.605 focuses too much on memorization and does not encourage nearly enough analysis or understanding of architecture. Whereas one student wrote “I learned the tools to formulate my own interpretations of architecture,” another complained “This course should encourage the application of knowledge, not only observation.” This point was highly repeated with regards to the class exam format as well. A number of students stated that exams for this course should consist of less slide identification and more analysis, with one student recommending there
be several small quizzes instead of the two large ones. Another point reiterated in the evaluations was that the professor's lecture style was extremely monotonous and that the lectures were usually extremely dry. Students went on to comment that the lectures in general ought to be more discussion oriented, and that otherwise they just don't succeed in gaining student interest. One student's opinion on this class was simply one word, "Boring." It also came through in these evaluations that Course 4 students still do not appreciate one of their core classes being offered as an Institute HASS-D. As one student wrote, "This course should leave out the HASS-D motivated 20 pages of writing for the semester." Indeed, much of the negative feedback centered around feelings that the papers were irrelevant to the rest of the course, and that perhaps they exist merely to remain in compliance with the Institute rules.

4.2.2 Evaluation Results for 4.206

4.206, Visualization, is a relatively new course to the BSAD curriculum, first initiated in 1996. Thus, this class did not have as much feedback as many of the other Course 4 courses that have been around longer. Many of the positive comments made with regards to this course were in direct opposition to many of the negative comments that were also found in the same evaluations. For example, whereas one student commented that the lectures and lab were well prepared and interesting, another would comment that the lectures did not mesh well with the assignments and that tutorials were poorly structured. Other positive comments included that this class is a nice link between theory and applied lab work and that it was a good way to jump into the world of computer graphics. One particular Computer Science major commented "This is a refreshing course that should be required of all of MIT." At least one student requested an advanced class as follow-up. On the negative side, responses included that there was too much information and too much work for one semester, that the pace was sometimes too fast, and the assignments often unclear. Students also complained that the computers did not run fast enough.

4.2.3 Evaluation Results for 4.302

Because the undergraduate required Visual Arts course has recently split into 4.301, Introduction to the Visual Arts for non-majors, and 4.302, Foundations in the Visual Arts for Course 4 majors, only 4.302 was focused on for this second evaluation. Because 4.302 has only been offered during the fall semester of the 1999-2000 school year, there was only a small amount of information available.

Positive comments made with regards to 4.302 included that the professor's enthusiasm for the subject succeeded very well in presenting her ideas in a fun, interesting, logical and helpful manner. Students definitely appreciated the way the course broke boundaries and beliefs with regards to traditional art, and encouraged individuals to challenge their own boundaries. One student even complimented this class on how it helped him to understand the nature of the design process in such as way as to help in other architecture courses. However, like with 4.301 in the e-mail survey results, many still questioned the relevancy of this course in the overall architecture curriculum. One student suggested that this course should be more about how to visualize space, while another wrote "How is this class different from 4.301 (all projects seem similar... why even separate students based on major?)”

Some of the reiterated negative feedback included that several students felt as though the "projects" were a waste of time, and that the overall course was not clearly defined. New commentary suggested that this class should attempt to get students to experiment more with the various shops and materials available to them at MIT. And although many students felt that the readings for the course were indeed very interesting, others believed there was generally too much and that often times the readings were not discussed and thus not made relevant.
5 DISCUSSION

The results of the MIT BSAD curriculum survey were in many ways inconclusive. Although many people felt strongly that the BSAD program does need changes, there were so many differing opinions as to what form these changes should take. The e-mail survey called for many types of suggestions, from ways to improve existing classes, to a question devoted entirely to eliciting proposals for new classes. Many of the suggestions for new classes ranged from pre-professional classes that explain how professional architects work with clients and budget restrictions, to straightforward drawing classes that could help students express their ideas through various drawing media. Some students requested an AutoCAD class, while others who had taken an AutoCAD class as part of their curriculum strongly opposed having had to have taken such a class. It quickly became apparent that trying to apply some kind of magic formula to make the curriculum satisfactory to all would be impossible.

The e-mail survey also asked current students and alumni for their opinions on how the MIT Department of Architecture in general might be improved. Many made strong accusations with regards to the way the Department does not seem to respect its undergraduate student body. Among these complaints, people mentioned that professors often do not respect undergraduate work or opinions. Students complained that they do not really know members of the faculty. They also complained that their advisors were not very clued into the undergraduate experience and thus not really capable of helping them. And most importantly, the undergraduates in most respects feel far inferior to the graduate students, being isolated in a building out of the way, always given sub-par resources, and getting very minimal attention from the Department faculty. To improve on these issues, the most important thing that can be done is to inform the faculty of the student’s negative feelings towards the Department. Beyond that, there are other changes that can be made that will hopefully serve to better the quality of the undergraduate life. These suggestions will be discussed first in the sections that follow.

5.1 Professors, Students and an Undergraduate Culture

Before any curriculum improvements can take effect, something has to be changed within the Course 4 environment to help make the undergraduates feel like a vital part of the Architecture Department. There are a number of ways, according to the student evaluations, that the Department falls short of this, and several ways in which it can overcome this problem.

5.1.1 An Appropriate Introduction to the Faculty and the Department

One of the major concerns of Course 4 undergraduate students is the fact that after spending several semesters isolated in N52, they never quite grow comfortable with being in the main building. The available resources never quite feel like theirs to explore and to use, and there is this impression that all of the graduate students, even those entering Level 1, are somehow superior to them in knowledge and in amount of architectural experience. One of the easiest ways to combat this issue is to get all professors of undergraduate studios to encourage their students to visit the main building and the students who work there as often as possible. If possible, the professors should take their students to visit some of the upper level studios so that they may be exposed to the work that goes on in the main building, and some of the unique equipment that could be available to them at some point in their education. It should be made clear to the undergraduates that many of the people who inhabit the main building are only a level or two of studio above them, and the equipment found in the main building should be made more accessible to all. On occasion, if students from the main building came to N52 for inspirational talks on model making, presentation, or drafting techniques, this could be of great value as well. Perhaps a tour of the main building facilities can be conducted by a small group of upperclassmen who are enthusiastic about the Department.
Another way to combat this sense of inferiority and exclusion would be to reach the undergraduates before they actually become part of the Department. Towards the middle of each spring semester, every department in MIT, including the Department of Architecture, holds an open house for prospective students, the purpose of which is to familiarize students with the Department, the faculty, and the various discipline streams. Unfortunately, those who attend these meetings tend to be pre-freshmen, many of whom have not yet committed themselves to attending MIT, let alone being part of the Department of Architecture. Only a small handful of other students attend this meeting, and the majority of students who have already chosen architecture as their major never think to attend. I propose that the Department hold an “Introduction to the Department” general meeting at the start of each spring semester. Those invited would include students enrolled for that semester in either of the two introductory studios (4.101, and 4.104), and any students who may be thinking of becoming part of the Department the following year. By having both the Professors of 4.101 and 4.104 encourage their students to attend this meeting, it will become a large and important forum for introducing students to many important aspects of the program that are currently left for students to discover on their own.

This proposed general introductory meeting may be conducted by either an enthusiastic undergraduate professor, or a number of graduating seniors who know a lot about the workings of the Department and the resources available to all students. The Department faculty, or at least faculty that undergraduates will most likely have contact with either as professors or as potential advisors, should all introduce themselves. Topics discussed may include the overall curriculum, including an in depth discussion of the various discipline streams held by a faculty member from each of the disciplines. This discussion of the discipline streams may be formatted similarly to the upper-level studio lottery open-house, with each representative giving a short slide show of what his or her Department has to offer. The whole BSAD curriculum itself can be discussed, including recommendations as to which classes to take at what point in the BSAD education. As one student wrote in her survey, “I felt the process was very vague. I started out loving architectural design, and ended up applying to medical school because I felt I had learned little and had no idea of where to go next with architecture.” This kind of proactive discussion about the program might help students gain a better picture of how the department works and what the faculty is all about, ultimately helping each student extract from the program what they most desire.

5.1.2 Better Academic Advising

Another way to help students understand the options available to them in the Department, and ultimately available to them upon graduation, is to improve academic advising. As one respondent wrote on her survey evaluation as an overall suggestion for the needs of Department, “[student are in need of] active, clued-in advising.” “[Undergraduates] need advisors who help with more than filling out papers and fulfilling requirements.” Undergraduates need career perspective, both professional and academic. Academic advisors need to be more well versed in terms of Institute and Department requirements, as well as all of the various possible educational options. Currently, students feel advisors are unaware of how the department works and credits necessary, and thus literally do little more than take a student’s word on what classes to take, sign a paper and then not see the student again until the following year. Many advisors are not capable of answering many of the basic questions students have about what classes they should be taking, not to mentions more complicated questions such as what a student should be doing to prepare themselves for graduate school or a job in a firm.

Because faculty advisors are assigned to undergraduates before they are required to choose a discipline stream, it could very much prove beneficial to have students chose whom they most want to be their advisor, based on what they think they might want to study. Students would have to learn about the various faculty advisors and their specialties of research, and then decide who would be the best advisor
for them. By encouraging that students choose an advisors whose interests of study may be similar to
to their own, communication between advisee and advisor would be substantially improved.

5.1.3 Involve Students in Faculty Research

Another way to get students more interested and involved in the Department is to have them become
more involved with the research that various faculty members are a part of. At the least, undergraduates
should be aware of their faculty's endeavors outside of teaching. One important opportunity offered by
MIT that is often neglected by the Course 4 Department is the Undergraduate Research Opportunity
(UROP) program.

As written on the UROP website, "There are many advantages to becoming involved in such pursuits as
early as possible in an undergraduate career: establishing ties to faculty; acquiring access to the advising,
counseling, and tutoring resources of a professional group; investigating a potential major; acquiring data
gathering and laboratory techniques; exploring the frontiers of a field; undertaking topics not amenable to
the classroom; facing a real-world problem; and establishing a focus for educational experiences. Through
UROP, students may gain a better understanding of the intellectual process of inquiry, while having the
opportunity to experience personal and professional growth." ¹

The various MIT UROP opportunities give students the capability of exploring a field of research and
getting to know members of the faculty on a different level. It is not doubted that MIT undergraduates are
among the smartest in the country. They spend their first and second semesters at MIT taking a rigorous
series of calculus, physics, and other sciences. Upon entering the Department of Architecture, this
technically rigorous education comes to a halt. To some, this is a welcome change. They see the design
process as a different kind of challenge, the kind they prefer. But for many, the change is one of
frustration. Through the UROP program, students can have a venue to use these aspects of their
education again.

While reviewing some of the posted UROP opportunities, for example, I came across this particular
UROP description which read “Program thermal performance predictions for advanced building facade
systems. Equations programmed in Excel must be developed in Java to interface with a web site to do real
time performance predictions. Knowledge of HTML and Java essential. Knowledge of energy and heat
transfer helpful but not essential.” ² Another very different opportunity reads “A year ago I was
commissioned to produce an anthology-textbook that deals with the history of modern architectural
theory...This work will be published next year and will be used in schools of architecture as well as in art
history programs where they teach the history of architecture...The student would gain experience in the
field of architectural theory, but also in the issues that go into the construction of this anthology.” ³ For
those one or two special student who may be qualified to do such research, these opportunities could very
well prove to be the academic challenge they desire. It could also prove to be the opportunity for that
student to discover something about themselves, and about the kind of architecture they might want to
pursue in the future. Thus, making the UROP program more available and encouraging more
undergraduates to participate is something faculty ought to do. One possible way to do so will be
discussed in section 5.2.6 of this thesis.

¹ http://web.mit.edu/catalogue/ch3.html
² http://web.mit.edu/urop/openings.html
³ Ibid.
5.1.4 Department Get-Togethers for Undergraduates

Yet another way that the Department of Architecture can get to know its undergraduates and help integrate them into the curriculum would involve holding scheduled faculty-student discussions. A meeting could be held once a year or so to discuss the BSAD program with the Department undergraduates and learn their opinions on various issues. The students would feel like much more of a vital part of the program if they were given a yearly opportunity to express their feeling with regards to their education.

On Tuesday, February 22, 2000, I attended what was entitled “A General Meeting of the Department” to which all students, faculty and staff were invited. However, in the days that preceded this meeting, it became apparent to me that the purpose of the gathering was truly to discuss graduate student issues alone. I clearly was not the only undergraduate who got this sense as I was the only undergraduate in attendance, and if the 100 pages of survey responses are any indication, this is not by virtue of me being the only undergraduate with an opinion. At this meeting, the graduate students of the Department were encouraged to voice their opinions on their curriculum and make suggestions for changes, many not unlike the ones I am proposing in this thesis. In fact, holding an undergraduate general meeting of this type would have achieved the exact goal I am trying to achieve, that of educating the Department staff and faculty as to the undergraduate opinion of the Department itself, and the curriculum in general. I think it essential, thus, that undergraduate “General Meetings” be held as well.

“Why have I never met, much less seen the Dean of my Department?” This question was poignantly asked by a student on her e-mail survey. Unfortunately, I cannot imagine the answer, as I have neither met the Dean myself, nor most of the Course 4 Administration, and know of very few undergraduates who have. This fact does not help the undergraduates feel any more like a part of the architecture community at MIT. As a professor once put it, if this were almost any five year architecture program, the entire school would know who were the top of the class, and they might even be heralded as the heroes of the school. Doing something specifically in the honor of the undergraduates would help them feel at least somewhat as though the efforts they put into the Department on a daily basis are actually appreciated. One way to show the undergraduates such appreciation might also prove to be a nice way for the undergraduates to close out each year.

In many of the MIT departments, a couple of weeks before the end of the term a dinner is held in the honor of the undergraduate students. These dinners vary from department to department. In one, a keynote speaker, usually a member of the faculty of that department, will be invited to give a short presentation of some of his research. Other departments give out achievement awards, for high academic standards, or scholarship awards if they are indeed offered by that particular department. Whatever the format, these dinners are an opportunity for students to sit down in an fairly informal environment and get to know both one another and members of the faculty. MIT’s architecture undergraduates tend to be segregated by year. Such an opportunity as this would give everyone the chance to come meet and learn to recognize the other faces in the department, especially the ones they don’t get to see on a regular basis.

5.1.5 What to do About N52

It has been discussed in several of the preceding paragraphs of section 5.1 that MIT’s Architecture undergraduates generally do not feel comfortable when in the main building, the place where most of the Department thrives. This was expressed a number of times through various surveys. For the most formative years, the undergraduates are in isolation at N52, a good ten minute walk from the main building under the dome. This isolates them not only from their fellow MIT undergraduates, but also from the Course 4 upperclassmen and graduate students from whom they could otherwise learn so much.
Despite a natural lack of desire to work all night, or even late at night, in a building right in the middle of Cambridge and a long dark walk away from the rest of campus life, the physical distance to N52 would not be so bad if the building's environment were at least an inspirational one for young students. As one student wrote about the N52 experience, "More funding is needed for the undergraduate department. We are cooped up in an asbestos-ridden warehouse structure off-campus with minimal (almost non-existent) under par equipment. We are forced to pay hundreds for lab fees above tuition with very little in return..." With good reason Course 4 underclassmen tend to get the impression that the work they do is just not as important as the graduate work that goes on in the main building.

The notion of being less important to the department than other architecture students is further supported when undergraduates first come to the main building where they are finally exposed to a thriving department culture of which they play no role. They tend to harbor a lot of resentment for the time spent in N52 when they first come across all the equipment, software and other amenities that for whatever reason they were denied knowledge of when they probably should have been most aware of their existence. As one student put it, "perhaps my freshman year I would've had time to teach myself but the resources (PC's) weren't available to me then. Even throughout my sophomore year, I wasn't made aware that I could use them, and I felt uncomfortable and out-of-place in the main building anyway..." Learning to use plotters, scanners, the model shop and even the laser cutter at an early stage, or at least being aware of their existence, would really help the undergraduates feel more comfortable exploring individual and unconventional options as part of the design process. They would be more encouraged to discover what feels comfortable to them in terms of personal design style and presentation.

There are many things that can be done to improve the studio culture and the department attitude towards the undergraduates. For one, the department can take the introductory level studios out of N52. Of course space then becomes an issue. I wish I could suggest where in the main building the undergraduates might fit. But this would benefit beginning students tremendously. They would, from the start, be exposed to the incredible quality if the work that gets produced by graduate students, thesis students, and even the upper level undergraduates who by this point have themselves already benefited from being in such an environment. Being in this building would be an inspiration, to say the least. As it is now, the work that comes out of 4.101, 4.104 and first semester Level I cannot even compare to any of the work achieved in the main building. I do not think the reason for this is that the introductory students are not advanced or not talented enough to do so. I think the reason is that these first year students have no studio vocabulary to work from. The only work they see are each other's, and they are never encouraged to view any one else's. There is no doubt in my mind that being in an more pleasant and inspirational environment will help students take their studios more seriously and strive to achieve better quality work. At the very least, undergraduates should be in the main building for their first semester of Level I.

If the entering undergraduates were moved to the main building, obviously someone from the main building would have to be displaced. This, however, might very well benefit many of the other MIT architecture students. For example, many thesis students have often been overheard saying N52 is a great place for one to get really messy, and a having the large wood shop in the same building would serve many thesis students working on large scale projects a lot more than it serves the undergraduates. Many graduate students have also been heard saying similar things. Perhaps a rotation of who would use the N52 space over a several semester schedule would truly benefit all.

Another viable option for helping the undergraduates feel less neglected in their first few semesters of the Architecture curriculum would be to substantially improve the resources available to them in N52. Currently the resources available in N52 pale in comparison to those of the main building. Currently, there are no PC's off of which to run programs like AutoCAD or PhotoShop, one sub-par printer, and no plotters or scanners. Whether or not use of these resources is supported by the faculty at search an early
stage in the design education process, the fact is that incoming graduate students have easy access to these resources while undergraduates do not, thus having a better opportunity to explore all possible design tools.

Now of course, all the above only works if the faculty and staff of the MIT Department of Architecture truly do believe the undergraduates to be assets to the Department. If this is in fact the case, many of the above suggestions would benefit the undergraduate experience.

5.2 Changes to Courses and the Overall Curriculum

The survey results expressed a number of differing opinions with regards to how one might improve the Bachelor of Science in Art and Design degree program. This reinforced the notion that one cannot simply apply a formula that will satisfy everyone. However, it is possible to make proposals for general changes that incorporate many of the issues that were raised by the survey responses. If I were to personally make one statement to the department, I would say that the faculty has to realize that many of us are either committed to becoming professional architects, or hope to learn enough to make this possible. The program we are a part of should reflect this. But in many regards we feel shortchanged. For one, the graduate students often get more attention than the undergraduates as they have extensively declared their commitment to architecture. In addition, too many of our core curriculum classes are offered to non-majors who do not have a vested interest in learning the subject material, thus leaving the undergraduates a poor learning environment. There are also not enough advanced architecture classes offered for the undergraduates to get an idea of what different venues of this major and the profession of architecture are about. In many cases, we just wish to be challenged by our classes.

MIT minds are made to work under stress and at full capacity of thought. We deserve the chance to prove we can think as hard and as dedicated as any of the graduate students. And not just in studio, but in all of our classes, from structures, to theory. Many Course 4 students dabble in engineering fields from Civil Engineering to Mechanical Engineering, in search of the rigors and challenges that these disciplines offer which our major does not. A more rigorous program might turn away students who are not very committed to architecture, but at least they would realize sooner rather than later that architecture is not the right field for them.

5.2.1 Studios, Advanced Courses and a Progression of Skill

It was expressed several times by students through their surveys that MIT’s Bachelor of Science and Art and Design is “is too theoretical and (ironically) unstructured,” that the classes ought to “reflect a definite progression of skills rather than an amorphous learning experience.” The majority of MIT undergraduate programs are in fact centered around progressive curriculums, something I think is vital to any learning experience. If a student takes an introductory level course and does not follow it with either a more advanced course or a class that asks them to draw upon the information previously learned, it is likely that a great deal of what was taught will soon be forgotten. Many of the core Course 4 undergraduate classes do not have such follow-ups. For example, 4.301 stands alone as the only required course from the Visual Arts discipline stream, leaving students no way of relating it to the entirety of their education. Again, the one required Building Technology course is very much isolated in the same way. With regards to courses that satisfy the General Institute Requirements (GIRs) and are thus commonly taken by the undergraduates, each teaches a distinct aspect of the discipline stream but is not related back to one another nor to any other courses, and they are thus are easily forgotten.

The majority of the classes, with the exception of the studios, can be taken at any point in a student’s academic career, no prerequisites required. This does not help make the program cohesive. Many of the more technical majors at MIT offer programs based on a progression of skills. Take for example Course
2, the MIT Department of Mechanical Engineering. In this department, for each introductory level course, there is a follow-up advanced course that is based on the same subject, but that takes the subject matter into more depth. The first of the classes is generally a theory and conceptual class that focuses on solving abstract problems, and the next relates the concepts to more realistic situations. And thus each area is grouped, Thermal Fluids Engineering I & II, Mechanics and Materials I & II, and so on. This kind of curriculum helps students reinforce concepts and ideas learned.

I believe that the Course 4 Department could benefit from a curriculum that draws on the same principles as departments like the Department of Mechanical Engineering. Within the Department of Architecture, however, the studios can play a large role in providing follow-up to the introductory courses. As the Department stands now, the studios are the backbone of the design curriculum. The studios represent a long string of progressive classes that increase in complexity as the semesters go by. Part of the depth of this program ought to be that as the studios progress, students have a more diverse set of ideas, theories and design vocabulary from which to draw from when making design decisions.

An added stress on recalling previous courses can be extremely beneficial to Course 4 undergraduates. If students were encouraged at certain key points along the studio progression to keep in mind the various things learned in other required courses, they could perhaps get used to the idea of drawing from these experiences while designing, and not forget a lot of what had been taught. Currently, the core courses of the curriculum are much too isolated as neat compact learning units that never need to be revisited. Being encouraged to keep in mind structures, visual presentation methods and architectural theory, to name a few, will greatly help MIT students become more aware and more well rounded designers. Keeping these things in mind will not detract from individual professor's unique way of exploring design issues; rather, they can enhance the studio experience by reminding students that they have a significant architectural background from which to put forth their own ideas and opinions.

As part of defining the curriculum to make it less of an amorphous experience and more of a progression of skills, key changes have to be made to many of the existing classes, and a number of new classes should be introduced. First and foremost, certain classes need to develop consistency in terms of their course syllabus. This is especially important of Building Technology classes that tend to be taught by a new professor each term. This changeover creates a situation where each group of undergraduates learns very different things after taking the same course, putting them on different levels, and making it impossible for these subjects to be commonly tied into other courses. Course curriculums, or at least the basic principles that need to be taught, ought to be predetermined for each class, regardless of the professors who might be teaching. Consistency in the non-studio courses will only benefit the students. It will also ease the incorporation of these classes into the studios, as I have proposed is necessary.

In all cases, professors have to stress to the students that a progression of knowledge and learning does exist. Courses must work with one another to ensure that they are in fact relating to each other. They each have to be made aware that the others exist. If not, vital information will continue to be left out of the curriculum, while other less important things will be reiterated from class to class. There must be more communication among the undergraduate faculty in this respect.

5.2.2 - 4.440, 4.401 & BT Labs and How they May Relate to Studio

According to the Massachusetts Institute of Technology Handbook for 1999-2000, students are currently being recommended to first complete the course 4.401, an Introduction to Building Technology, first semester of their sophomore years, and then, more than a year later, to take 4.440, Basic Structural Theory. In the meantime, undergraduates are supposed to take one of the two Department Laboratories, either 4.411, Building Technology Lab, or 4.42J, Fundamentals of Energy in Buildings. This
recommended schedule, however, seems to exemplify the amorphous structure of the BSAD curriculum. Whereas these BT classes can easily be made to feed off of one another in a sort of progression, instead they are recommended to be taken in such a way that encourages students to view them each as individual units that don’t quite relate to the rest of the curriculum.

The undergraduate course 4.440, according to the MIT Course Bulletin for the 1999-2000 school year, “Introduces the static behavior of structures and strength of materials,” through various scientific and hands-on lab methods.\(^4\) The undergraduate course 4.401, according to the same source, “Explores the application of building technology to architecture through considerations of building construction – materials and methods – and systems – structure, enclosure, climate, and utility services, light acoustics, fire safety, and accessibility,” again both through mathematical applications as well as hands on experimentation.\(^5\) These classes highly correlate. They both use the same equations for analysis of structure, although 4.401 adds more theory for the other elements of building technology it explores. And both the classes use lab work as part of the learning process. Thus, it would be logical to use 4.440 as a prerequisite to the more complicated BT course, 4.401. By encouraging that these two classes be taken sequentially, students will relate them. The theory learned in each, the lab method of exploration, and the general application of scientific principles to buildings, will be reiterated in a cohesive fashion, rather than standing alone for each class. In addition, the course 4.440 is far more theoretical than 4.401. In 4.440, structural theory is learned in the abstract sense. Abstract problems are solved more often than realistic ones. It is in 4.401 where these concepts are actually applied to realistic architectural situations. Thus, by placing these two classes sequentially, students learn the theory in one course, and then the concepts are solidified for practical application by relating them to real buildings in the next.

After having taken both 4.440 and 4.401, students should then be encouraged to take one of the two Institute required laboratory courses. Consider that at this point, students have taken both a theoretical structures course and a building technology course that provides more of a practical application. Thus both of the Building Technology labs can serve as the place to apply this knowledge into design, adding another layer of complexity to the BT subjects. Perhaps the curriculum of these labs can be modified to enhance the idea of applying these skills and the knowledge of structures and building systems into the design process.

One student cited 4.411 as the class she felt was most significant, due to the way it taught her to incorporate things like climate control, solar heat gain, and other such concepts into her designs. One way to really make this experience common for other students would be to introduce computer software, such as Radiance and Lightscape,\(^\text{TM}\), that can really express the influence that environmental factors can have on a design. Testing a design using such software could enhance the success of a particular design. These new techniques, in addition to the physical models already used in these course, can help to make this class an enjoyable, informative, and unforgettable learning experience, and one that students may not easily forget when designing in studio.

With regards to how the proposed BT sequence would relate to the sequence of the design studios, several things must be noted. For one, I believe the BT sequence should start when the studio sequence is begun, with 4.101, if not earlier, as a means of exploring the department. 4.101 does indeed touch upon the basic notion of structures in its curriculum, with the physics of load bearing columns, stud walls, and retaining walls. It would thus be logical for a student to relate the first BT class of the sequence to this studio. 4.101 could serve as the place for students to first apply the knowledge of structures learned in 4.440.

\(^5\) Ibid., Page 365
One aspect of the 4.401 curriculum in the fall of 1998 was an introduction to the drawing of building details. This is also a skill stressed in the 4.104 introductory studio. Although using the skill in the 4.104 studio would help students remember what they have learned, there is no need for it to be taught twice. The skill has been learned, and the professor of the course should know that he can count on the students to use that skill as part of the final production of the course. If these two courses worked with one another to define their individual curriculums, perhaps some stress on learning to draw details could be taken out of 4.104, allowing for more emphasis to be placed on drawing as a part of the design process rather than of just the final product. This ability to develop drawing as a design skill was one of the many opportunities students requested in their survey responses.

Finally, by the time students reach Level I, they should have developed enough skills to apply the concepts learned in their Building Technology classes to their work in the other courses. This would include the ability to take into account issues such as how solar heat gain might effect a design, or how a building could be more interesting if its structure were part of the design process. Perhaps students could even be encouraged to take the initiative and apply the same laboratory experiments, both physical and computer, to their own studio designs.

5.2.3 - 4.302 and How it May Relate to Level I

Currently, the MIT Department of Architecture handbook, suggests that students may take the Institute course 4.302 the second semester of their freshman year in an attempt to explore the Department of Architecture. In my opinion, this is not a very good suggestion. The current curriculum of this course does not allow it to relate to the rest of the Department. By taking it independently of any other Course 4 classes, it is only further emphasized as an independent entity that does not relate to architecture. I believe, 1) that this class ought to be firmly embedded further into the curriculum, and 2) that the course content needs to be seriously revised so that it may better relate to rest of the Department of Architecture.

Much of the criticism surrounding this course deals with how the subject matter is never related to architectural issues. The overall course content would not have to be changed in order to form a correlation. As described in the MIT Course Bulletin for 1999-2000, this course “offers a foundation in the visual art practice and its critical analysis for beginning architecture students. Emphasis on long-range artistic development and its analogies to architectural thinking and practice.” If the latter part of this statement was to be successfully taught, the administrators of 4.302 must be sure to incorporate urban issues, context, notions of public vs. private, ideas of critical value systems, and an understanding of people and human nature; and more importantly, the course professors must directly relate these ideas to architectural examples at least a few times over the course of the semester. This would serve invaluably to relate this course to the entirety of the rest of the curriculum. The 4.302 faculty needs to be more aware that students may not understand why they are doing things, and they should constantly explain to them the reasoning behind each project, and once in a while the relation it might have to architectural issues.

Upon entering the second semester of Level I, students should have been exposed to 4.302. Perhaps by the second semester of Level I, the 4.302 professor(s) can participate in a studio critique, or give a short lecture about current artwork, thus reminding the students of the ideas and notions of 4.302, without expressly reiterating the course content. This would add a much needed level of depth at an appropriate point in the studio progression.

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5.2.4 - 4.206 and How it May Relate to Level I

The strongest criticism related by students with regards to 4.206 centered around the fact that although this was a visualization class, the focus of the class was much more about learning one computer program that the majority of students did not find useful. As a result of the course’s strong focus on developing a final project using the program Alias|Wavefront, after the first few lectures and assignments, very few visualization techniques are taught. One suggestion for improving this course would simply call for the course administrators to remind themselves of the purpose of the course.

Rather than keeping this course production oriented, with most of the semester spent on finishing the final project, perhaps this class could be run more like a mini studio. The way the course exists now, the lab and the lectures are fairly independent of each other. In the beginning of the course, there are a few independent visualization assignments that get handed in and graded. Midway through the course, the final project is proposed, and work on it begun. After this point, it is up to the student to take the initiative to discuss the project with any of the course faculty. This procedure is not conducive to the learning of visualization; rather, it allows for students to focus merely on having a finished project, and not on whether the ultimate product really expresses the visualization originally proposed.

Compare this method to a studio. In a studio, a design problem is given. After considering a set of issues, the student makes an initial pass at a design. But the thought process does not end there. The design is never really finished, not even on the last day. In-class critiques by fellow students, professors, and guests, help the student to continue recognizing how their project might change to better deal with the original design challenge. If students could be coached and encouraged, from the moment they propose their final assignment, to keep considering the visualization issues they want their projects to express, the focus of the class will become less about learning how to use Alias, and more about how to use Alias to create visualization. If a procedure of in-class critiques and one-on-one meetings with the professor and TA’s was implemented, the notion of which computer program gets used for the course will become less of an issue. Alias would become much like a high-tech tool, with the course’s final visualizations truly representing ideas rather than the pricey software itself.

Once this class becomes focused on a goal different than a software learning seminar, 4.206 lectures can also be used to help integrate the course better into the architecture curriculum. Although many did find the 4.206 lectures interesting, it would be beneficial to Course 4 students if several examples of architectural visualization techniques were shown throughout the course. 4.206 may in fact be open to the entire MIT community, but as a required course of the Department of Architecture, Course 4 undergraduates deserve to be catered to. In the fall of 1998, this class often showed examples of visualizations of weather, 18th century train schedules, and even the sun, for example. Visualizations pertaining to architecture, however, were never displayed. It would be invaluable for students to see examples of the non-traditional ways that buildings can be represented. Having these kinds of images enter the visual vocabularies of the undergraduates can serve them very much in studios, in terms of how to represent and express their ideas. 4.206 should really foster presentation techniques and how to express oneself in terms of computer graphics, physical models, and hand drawn representations as well. In order for this course to influence the design studios, it should be taken by the second semester of Level I, so that students can apply the skills learned to help them better represent their ideas.

5.2.5 - 4.605 and 4.60x, History and Theory of Architecture I&II

It is hard to imagine that anyone might argue the fact that a working of knowledge of both the history and the theory of architecture can be invaluable to anyone aspiring to become an architect. I think it is for that reason that there is an architectural history and theory course included as part of the Course 4 core curriculum. Unfortunately, as supported by the statements of numerous students in their surveys (please
refer to section 4.1.4), 4.605 does a fairly poor job of providing Course 4 undergraduates with an education in this subject matter.

The most common reason students expressed for why 4.605 fails in its attempt to relate architectural history and theory to the undergraduates is the course's focus on the memorization of slides, and not the understanding or analysis of time periods and buildings. Thus, although this course is titled, “An Introduction to the History and Theory of Architecture,” most students walk away from this class with little knowledge or understanding of either, especially of theory. Students also complained that the course itself tries to cover too much information for one semester, but that at the same time it leaves out too much of modern and contemporary architecture. Another frustration expressed was the fact that this course is an Institute HASS-D. Course 4 undergraduates complained that the format of 4.605 class caters very much to non-major students, and that these outsiders often kept interesting discussions from taking place. Considering the fact that 4.605 is a core class of the undergraduate curriculum, this is unfair to say the least.

The first thing that can be done to improve the course 4.605 would be to separate the HASS-D version of the class from the version taught expressly for architecture majors, much as was done with 4.301/4.302. Another change that could be made would be to expand the subject matter of this course to include architectural theory and modern architecture, and then ultimately divide the course into two sequential semesters. The first of the two courses, spanning architecture from ancient times to perhaps the start of the 19th century, should probably be taken at an early point in the design sequence. The added vocabulary of architectural history and design can help entering students focus their design ideas. The second of the 4.605 sequence can be taken at a later time. One might not even want to muddle earlier studios with the notions of modern architecture; the complexity of contemporary architects can come into play as the studios themselves get more complex.

5.2.6 Level II, Workshops, Materials Studio, Computer Studio, or a UROP

Once Course 4 undergraduates reach senior year, many have completed nearly all of their Institute and BSAD degree requirements. They thus have a lot of time to devote to the exploration non-curriculum opportunities that exist in the Department. In addition, whereas many of the seniors may have been gated to take a Level II studio, it is not required of them. Although I believe taking a Level II studio can be a valuable experience, many do not feel it is necessary. Currently, if students are a part of the design discipline stream, they may take two more courses from any of the 3 remaining disciplines rather than take a Level II studio. I would like to propose some other alternatives to taking a Level II studio that might serve the undergraduates greatly.

The current BSAD curriculum is centered around a mere 6 core required courses, none of which culminates in a really special opportunity. Students in their senior year should be given a chance to do something really unique with their remaining time as undergraduates. If an undergraduate opts not to take Level II, perhaps they can choose to take one of the many workshop opportunities MIT has to offer. Taking a workshop can serve any student whose interest in architecture is not so much abstract design as it might be working towards a real goal, for example, a housing community that might get built and directly improve the lives of a number of people. Many of these workshops are as much of a time commitment as any studio, and can perhaps be worth the equivalent amount of credit.

Another possible alternative to the Level II or two other class requirement might be to offer other types of studios that deal more particularly with a student’s interests. The course enrollment would likely be small, but by really focusing on students’ particular interests, these courses may prove to be the most useful of one’s academic career. One possible studio could be a materials studio. MIT architecture
students are infused with calculus, chemistry, biology and physics from day one, but once a student is integrated within the Department, much of this knowledge is never used again. At MIT we are in the midst of incredible research, be it close by in the Building Technology department, or further away by the Department of Material Science. This environment could help to build a very unique course whose curriculum is based on learning about newly developed polymers, adaptive use of industrial materials, or even new building techniques. This kind of class would spark the imagination both in the design studios, and to each student as an individual creative spirit. The first few weeks of such a course could be dedicated to the research of various cutting age building materials and innovative building techniques. The rest of the semester can involve the selection of one of these materials for further study as part of the design of a studio project. This studio would also serve as an advanced class, the likes of which is currently missing from the BSAD program.

Another idea for an innovative studio could serve as an advanced follow-up to both the 4.411 Building Technology Lab, as well as the 4.206 Visualization course. This class would be a studio in which the students as designers are encouraged to use both physical wind and ventilation tests, as well as computer programs such as Radiance and Lightscape™ to aid in the design process. Instead of physical models and drawings, the final products of this class would be computer generated images. This studio would be great for the architecture student interested in the use of the site condition experiments and the computer as a medium to help in the design process. It could also serve as a follow-up to 4.206 if the professor encourages students to push the envelope with regards to visually challenging presentations.

Lastly, as alluded to in section 5.1.3, the various UROP opportunities that could be offered to undergraduates could be provided in such a way as to offer a unique and advanced learning experience for students who choose to participate. If a student in his or her senior year were to take on a challenging UROP, the scope of which was determined to take up the adequate number of credits, perhaps a semester or two of UROP work can also be used to satisfy the Level II requirement. (Please refer to section 5.1.3 for more information).

**5.2.7 AutoCAD, Portfolio Workshop and IAP**

One of the biggest sources of dissenting interest in terms of courses that would be beneficial to the BSAD curriculum is the notion of an AutoCAD course. Many students who have never been exposed to the program in a classroom environment expressed interest for such a class. Many who did take an AutoCAD course during their education at MIT expressed it to be a waste of time. Still others cited that the idea of spending thousands of educational dollars on learning a computer program that could feasibly be learned on the side, was inconceivable. And yet others already in the professional world claim, among other things, that if you do not enter the work force without at least some basic AutoCAD skills, you cannot be marketable, thus making an AutoCAD course a necessity.

I propose that rather than having students spend valuable semester time and money on a course that would teach them AutoCAD, perhaps it was wiser to provide an computer workshop that would include AutoCAD, over the Independent Activities Period (IAP). This course could either be mandatory or an elective, but it is important to keep in mind that MIT rules do allow for mandatory courses to be taught over IAP. In addition to an AutoCAD workshop, introductions to other commonly used architectural software can be offered as well, from PhotoShop to FormZ, or any other design software “du jour”. This course could include “how to’s” for using scanners, plotters, and other computer hardware available in the department. Many students already take advantage of IAP for the opportunity to work in the professional world via the IAP Internship Program. As a result, I have no doubt that a large number of students will take advantage of these courses as well.
The majority of students look upon the IAP time as a chance to enrich themselves, and offering workshops that teach much sought after skills would be a great way to give students such opportunities. Another workshop that could be offered as a 6 unit course during the IAP period could be a portfolio workshop. This would be especially useful for students entering their second semester of senior year. They would then have a portfolio ready for use when applying to graduate schools or interviewing for a position in a firm. MIT undergraduates have very little other time to devote to such an endeavor. At the same time, by taking this workshop, Course 4 undergraduates can receive guidance from faculty members, use valuable MIT resources, and get feedback from fellow students and professors, so that they truly create a special portfolio that will uniquely express each individual. Hopefully these students will have taken the offered computer IAP workshops at an earlier time, and then be able to adequate apply the skills learned to create the best portfolio possible.

6 CONCLUSION

In conclusion, as first stated in section 4 (Results) of this thesis, of the 159 MIT Bachelor of Science in Art and Design students polled by the evaluation survey, 28 responded. The strong and developed opinions expressed by this 18% of the polled audience produced over 100 pages of vital and telling information. Although many of the expectations and frustrations expressed differed from one another, there was a definite consistency in opinion with regards to various aspects of the BSAD experience.

One of the most commonly cited frustrations that BSAD students expressed was a general sense that the Department faculty regards its graduate students as much more valuable, continually giving the undergraduates less attention and poorer resources. In terms of courses, students frequently expressed resentment to the fact that the majority of their core curriculum classes are MIT HASS-D's. These courses are attended by Course 4 majors and non-majors alike, allowing for the dumbing down of class discussions and generalization of topics at the expense of the in-major undergraduates. Many other students complained that the current MIT BSAD program does not prepare or educate its students enough for success in the professional world. And like many of the undergraduates who responded to the survey evaluations, I would personally like to see an increase in skill progression and advanced courses offered to the undergraduates in an effort to adequately challenge us.

There are numerous ideas, opinions, and suggestions expressed throughout the various sections of this thesis. And there are likely hundreds more that have not been expressed. My hope is that, at the least, this investigation might help lead to an open dialogue within the Department of Architecture. If the increase in communication and awareness lead to changes within the Department, perhaps the next time this type of survey is conducted, students would be able to say definitely that they have received the highest quality of education they expected from a university such as MIT.
REFERENCES

   Massachusetts Institute of Technology Department of Architecture, 1999.

   Massachusetts Institute of Technology, 1999.


APPENDIX A

Because of the variety of opinions expressed through the surveys, compiling them in the form of a cohesive essay or something along those lines was almost ridiculous. There were no blanket statements that could be made, nor would they be fair or accurate, especially in light of this next point. The surveys reached approximately 63 current undergraduates, and 96 of the most recent alumni. Yet, only 28 completed surveys were in fact returned. Of course each one of the returned surveys was extremely insightful and worth reading every word, but they were only representative of 18% of the intended audience. And thus I chose to present this data not in a mathematical way, not in a literary way, but in a straightforward tabular way.

1) Of the classes you completed within the architecture department, which class/es did you most enjoy? Please explain.

<table>
<thead>
<tr>
<th>Studios In General</th>
<th><strong>Only chance to go through design process and pull together what you learn in every discipline: create rather than absorb.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enjoy the work, the challenge, and how it brings people closer to each other.</td>
</tr>
<tr>
<td></td>
<td>Where I learned most of my architecture skills, and was exposed to other people's knowledge and points of view.</td>
</tr>
<tr>
<td></td>
<td>Great interaction with professors and fellow students.</td>
</tr>
<tr>
<td></td>
<td>Challenging.</td>
</tr>
<tr>
<td>4.101 – Intro. Studio</td>
<td>High degree of structure provides clear indication of the nature of architecture.</td>
</tr>
<tr>
<td></td>
<td>Strong hands on experience, motivated TA’s and professor.</td>
</tr>
<tr>
<td></td>
<td>Ideal introduction to architecture.</td>
</tr>
<tr>
<td></td>
<td>Great fun.</td>
</tr>
<tr>
<td>4.104</td>
<td>A lot of fun.</td>
</tr>
<tr>
<td>4.125, 4.126 - Level I</td>
<td><strong>Learn to be comprehensive in presentation and well developed in design.</strong></td>
</tr>
<tr>
<td></td>
<td>Encouraged unconventional thinking and creativity in design process.</td>
</tr>
<tr>
<td></td>
<td>Good interaction with classmates, professors and TA; Good social experience.</td>
</tr>
<tr>
<td></td>
<td>Professor was encouraging, supportive and passionate about the work.</td>
</tr>
<tr>
<td></td>
<td>Joining a competition gave us a real and practical design goal.</td>
</tr>
<tr>
<td></td>
<td>Good course material.</td>
</tr>
<tr>
<td></td>
<td>First give thought to portfolio work and IDP.</td>
</tr>
<tr>
<td>Level II</td>
<td>Being combined with graduate students: forces you to work harder, indicative of what grad life might be like.</td>
</tr>
<tr>
<td>Turkey Workshop</td>
<td>Great hands on approach keeps the studio interesting. Also, working for a real solution to a real problem adds a lot to the studio/design experience.</td>
</tr>
<tr>
<td>Required Course BT</td>
<td>In General</td>
</tr>
<tr>
<td>4.401</td>
<td>Professors are very down to earth.</td>
</tr>
<tr>
<td></td>
<td><strong>Actual models and experiments</strong> helped learn how things really work and theoretically work as well.</td>
</tr>
<tr>
<td></td>
<td><strong>Professor was well-learned and presented subject matter as interesting and vital.</strong></td>
</tr>
<tr>
<td></td>
<td>The professor was very good at relating the otherwise boring class material to his real life projects which worked to make the material feel much more interesting. This kind of technique can motivate you to learn the material because you sense you might use it again as a professional.</td>
</tr>
<tr>
<td></td>
<td>Professor was effective and entertaining, and understanding as a person about the other rigors of MIT.</td>
</tr>
<tr>
<td></td>
<td>A lot of work, but actually useful in that we learned something from it, unlike from 4.440. Did not learn as much from any other building technology class.</td>
</tr>
</tbody>
</table>
### 4.411
**Hands on approach** to lab experiments really help you understand the concepts.
The **models and experiments were much more enlightening** than numbers on a chalkboard.

### VA In General
The visual arts **visiting artists are absolutely great.**

### HTC In General
Ex. 4.614, 4.602, 4.601, 4.635, 4.603, 4.607 and 4.642 – Professors are intelligent and eloquent, concerned with interaction and created good **forum for discourse.**

### Comp. 4.206 – Visualization
Taught good background for development of **techniques.**

Very useful, even the non-computer stuff.

<table>
<thead>
<tr>
<th>Architecture Electives</th>
<th>In General</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex. Photography, Visualization and Video - Taught good background for <strong>developing techniques,</strong> and allowed for <strong>individual freedom</strong></td>
<td></td>
</tr>
<tr>
<td>Ex. Furniture, Design in the Community - Cater to student’s <strong>individual interests.</strong></td>
<td></td>
</tr>
<tr>
<td>Expose students to variety of faculty members.</td>
<td></td>
</tr>
</tbody>
</table>

### IAP Internship
***The IAP internship program (off campus job) was very effective.***

<table>
<thead>
<tr>
<th>4.341 - Photography</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learned a skill, serious critiques, informal discussions.</td>
</tr>
</tbody>
</table>

### Furniture
**Great instructor.**

**Relief from curriculum in that energy is spent on production rather than design.**

Relaxing and refreshing and so very different than any of the other Course 4 classes.

<table>
<thead>
<tr>
<th>4.431 - Architectural Acoustics &amp; Lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor was extremely intelligent and made the subject matter, lighting, a thrill.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.206 – Modern Art and Mass Culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor had <strong>motivating lecture style,</strong> not just memorized slides of artworks, but learned to understand and be able to analyze where they came from and why they existed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.614 – Religious Architecture and Islamic Culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor knew subject well, <strong>taught it as critical information.</strong> All is new material that is not taught elsewhere in department.</td>
</tr>
</tbody>
</table>

### Out of Major Electives

### Not Currently Offered

---

- “The Most “enjoyable” classes: I would have to say that to me, the teacher makes a big difference. There are classes that you like b/c of the material, what’s being taught or just b/c it’s something you like doing. But a good teacher can make even the most boring material digestible or even fun. [The best example of this was] 4.401. [The professor] was very good at relating the otherwise boring class material to projects that he
had worked on in real life, which actually made the material feel much more interesting. In other words, linking the material to real experiences helping to motivate you to learn the material, b/c it made you feel like it was something you would use again, in real life as an architect. I was convinced that I actually liked structures after taking this class. But then 4.440 changed my mind...So I’m convinced that having good teachers in the BT department would make a big difference. Another thing is that having a bad teacher can also make you dislike a class, even if it’s something that you normally like. For example, I had always liked studio, because I like the material, I like the design process. But with Level one with [Prof. X], I did not enjoy myself. I liked the project to a certain extent, but overall, I did not “enjoy” the class..."

- “I also enjoyed 4.401 because [the Professor] was the single most fabulous teacher I have ever had. Not only was his coursework rigorous and comprehensive, his lecture-style was effective and entertaining, even charming. At the same time, he was very understanding of students’ other coursework and was lenient if necessary.”

- “I think the reason for liking both [4.401 (fall 1997) and 4.614(fall 1999)] entirely has to do with the professors. They both really knew their stuff and presented in a way that made it seem interesting and vital. The labs in 4.401, although they seemed a little trite at the time, introduced common building materials through hands-on experience – I don’t think there’s a better way to learn about the building properties of concrete with out trying to mix and pour it yourself. 4.614 was great because almost all the material was new to me. I think MIT undergrads would benefit from learning more about non-western architectures.”

- “Honestly, the classes I enjoyed the most were those in HTC, particularly 4.614, 4.602, 4.601, 4.635. This term I’m taking 4.603, 4.607, 4.642, and I already know these will be added as some of my favorites. The professors in HTC, especially, are some of the most intelligent, eloquent professors I have ever had at MIT. They are always concerned with interaction, and with developing an atmosphere of academia and a forum for discourse.”

- “The architecture class I have enjoyed most so far is 4.126 – Architectural Design Studio Level 1. However, this is so only because the professor has made it enjoyable and rewarding...[He] has taught us what (and how) to investigate in order to understand the context of our site. This was the first time in 4 studios that I was able to use my own discoveries to influence my design decisions. All other studio professors I’ve had did NOT provide me with this very important, fundamental skill...I enjoyed most my advanced studios...I think their approach to design encouraged a great deal of unconventional thinking and creativity in design process. Particularly, [Prof. X’s] emphasis on the importance of a comprehensive presentation in addition to a well-developed design has served me well...”

- “Studio. I enjoyed them most, not only b/c they are the main courses of design, but b/c they taught me that manifesting an idea is an on-going process, never to be truly completed. In fact, some of the best designs I ever did or saw were crude trace paper drawings made right before a presentation...Studio is also where you can see whether a professor is worth [anything] – some professors were too busy congratulating themselves on how great of designers they are (were) to really impart their wisdom on students. Conversely, the best teacher I’ve ever had was a visiting professor who taught one of my studios. He put aside all his personal accomplishments and non-intrusively taught me the essence of what being a designer was, caring less about how pretty the presentation was and instead concentrated on whether there was any substance to what I was trying to accomplish.”

- “…I enjoyed...Level I Studio because of [the professor]. She was extremely encouraging, extremely supportive, and extremely understanding in regards to personal crisis...[She] completely levels with you... She is impassioned about her work and it shows in her teaching. I will also note that she is the one teacher who really made me start thinking about portfolio work, IDP, and other aspects of architecture that other people in the department, oh maybe mention, but don’t really say much about it, or do anything to really motivate students to get on top of things. [She] really makes an effort to communicate with students, in my opinion. I feel she has really helped me focus on where I am in my undergraduate architecture career and she has always been around for me to discuss relevant issues. She is so encouraging...”

- “Of course studio was the most enjoyable class within the department. That’s where I learned most of my architecture skills and where I was exposed to other people’s knowledge and points of view. As opposed to other schools, the interaction with professors and fellow students was amazing, and it is from those moments that I keep the best memories.”

- “I am also really enjoying much of the upper level electives that I am just now getting to take, like Furniture making and Design in the Community...I think these electives have allowed me to take classes that are closer to my specific interests in architecture, and again, I enjoy the teachers.”

- “I actually really enjoyed. I wish I could take studio the rest of my life, I really enjoyed the work, the amount it asked from me, and I enjoyed how close it makes people to each other.”
2) *Of the classes you completed within the architecture department, which class/es did you find most significant to your architectural education? Please explain.*

<table>
<thead>
<tr>
<th>Studios</th>
<th>In General</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THE most important courses in the curriculum.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Learning design is about the time and effort it takes to figure out what works and what does not.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>The studios are the next closest thing to being an architect.</strong> They show what architecture is really about.</td>
<td></td>
</tr>
<tr>
<td>Are the main course of design, teach you how to manifest an idea as part of an ongoing process that will never truly be completed.</td>
<td></td>
</tr>
<tr>
<td>Other courses are there as support material for designing in studio.</td>
<td></td>
</tr>
<tr>
<td>It is during studio hours that you learn the most about architecture.</td>
<td></td>
</tr>
<tr>
<td>Prepare you for amounts of work that come later in life.</td>
<td></td>
</tr>
</tbody>
</table>

| 4.101 | Good foundation for rest of classes. (as with 4.104) Where you really begin thinking like an architect. |

| 4.104 | Provides primary techniques of design, and gives the freedom to develop fundamental concepts. |

<table>
<thead>
<tr>
<th>4.125, 4.126 Level I</th>
<th><strong>Growth in terms of personal design styles/skills.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>First major step away from basic design skill building.</td>
<td></td>
</tr>
<tr>
<td>Increased call for freedom, creativity, architectural skills, and critical thought towards own design work.</td>
<td></td>
</tr>
<tr>
<td>First time learn how to real investigate a site, and use discoveries to influence own design decisions.</td>
<td></td>
</tr>
<tr>
<td>Models and designs unimportant in comparison to the importance of the struggles and thought processes.</td>
<td></td>
</tr>
<tr>
<td>Great combination of complex program, design parameters and urban site condition – this studio had quite some depth.</td>
<td></td>
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<tr>
<td>Particular professor in tune to the needs of young designers.</td>
<td></td>
</tr>
<tr>
<td>Professor made it enjoyable and rewarding.</td>
<td></td>
</tr>
<tr>
<td>Great to work with an energetic professor.</td>
<td></td>
</tr>
<tr>
<td>Learned much of the practical knowledge useable in offices even as interns.</td>
<td></td>
</tr>
<tr>
<td>Learn important problem solving and presentation skills.</td>
<td></td>
</tr>
<tr>
<td>Felt more like an architect than like a student.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required Course</th>
<th>BT</th>
<th>In General</th>
</tr>
</thead>
<tbody>
<tr>
<td><em><strong>Structure is important.</strong></em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tangible useful information concerning climate effects on design, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn about the practical, ex. how to draw and do details, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taught the basics of how buildings work, something you need to learn before you can design.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interns in offices generally deal with more technical side of architectural production, and these classes are great preparation.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 4.411 | Reinforce importance of considering issues such as natural lighting, ventilation, solar heat gain, etc. when designing. |

<table>
<thead>
<tr>
<th>4.401</th>
<th>Of course structures itself is terribly important, but with a great professor who made me really love what I was doing, it became even more significant.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most significant of Building Technology classes. Learned more from this BT class than any of the others.</td>
<td></td>
</tr>
</tbody>
</table>

<p>| VA | --------- |</p>
<table>
<thead>
<tr>
<th>HTC</th>
<th>Comp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture Electives In General</td>
<td>Ex. Photography, Visualization, Video – <strong>Practical skills</strong> that will be a great help for finding a job in media design.</td>
</tr>
<tr>
<td>IAP Internship</td>
<td>Learn reality of architecture in practice and how little design actually influences the real world.</td>
</tr>
<tr>
<td>4.431 – Photography</td>
<td>Most significant and only “half normal” Visual Arts class. Mostly significant because it taught how to take pictures of our models.</td>
</tr>
<tr>
<td>4.607 – Thinking About Architecture</td>
<td>Platform for debate on several issues concerning architecture, its practice and theory. Forces students to really <strong>think about what it means to be an architect</strong>.</td>
</tr>
<tr>
<td>4.535 – Renaissance Architecture</td>
<td>New perspective on design centered around important role that <strong>history, society, and philosophy</strong> has on architecture – not matched by any studio.</td>
</tr>
<tr>
<td>4.614 – Religious Architecture and Islamic Culture</td>
<td>The knowledgeable professor really helped open students’ eyes to architectural examples and their significance to which we were not exposed through other classes.</td>
</tr>
<tr>
<td>Furniture</td>
<td>Taught me a lot about <strong>interior and furniture design</strong> - both are important to architects.</td>
</tr>
<tr>
<td>4.665 – Contemporary Theory</td>
<td>Brought in a <strong>dimension</strong> of architecture that is lacking in the department in general.</td>
</tr>
<tr>
<td>Out of Major Electives</td>
<td>Involved <strong>critical and proactive thought towards urban issues</strong> not taught in courses within the Architecture Department.</td>
</tr>
<tr>
<td>Urban Design Independent Research Class</td>
<td>Broaden experience to <strong>macro environment</strong>.</td>
</tr>
<tr>
<td>Urban Planning Courses in General</td>
<td>Changes way one thinks about architecture in general – forced to place buildings on greater <strong>social and historical/cultural context</strong>.</td>
</tr>
<tr>
<td>4.250J/11.001J – Urban Planning Class</td>
<td>Only course whose information could be used in the real world and taken as a <strong>marketable skill</strong>.</td>
</tr>
<tr>
<td>Not Currently Offered AutoCAD Class</td>
<td>Got to explore and develop interest in the <strong>effects of the environment</strong> on the human psyche.</td>
</tr>
</tbody>
</table>

- “I think 4.440 and 4.401 taught me the most about practical architecture, or at least the kind that I want to do, because you just need to know the basics of how a building works before you can design it. For example, I found it impossible to do details, as required, for 4.104 because I didn’t have a clue as to how things came together and what materials could do what. Through 4.440 and 4.401 I think I have learned more about those things.”
Thinking About Architecture, 4.607 will be very significant to my architectural education. He sets up a platform for debate on several issues concerning architecture – its practice and theory – forcing us to really think about what it means to be an architect or an architecture student, for that matter. This class, as well as Renaissance Architecture, 4.535 has made me realize the important role that history, society and philosophy has in architectural design. These classes have given me a whole new perspective on design, allowing for a new way of thinking, the significance of which has hardly been matched in any studio class.

“I also really enjoyed [the] theory class 4.665 (contemporary theory) because it brought up another dimension of architecture that I feel is lacking in this department in general. I think studios, especially beginning studios (101,104, Level I) ought to emphasize we ought to understand more why we are doing things, where we think we are going with them…Of everyone in the department, [undergraduates] are the ones with the least appreciation of theoretical issues due to our MIT indoctrination in science.”

“4.614, Religious Architecture and Islamic Culture was a wonderful class because it opened my eyes to architectural examples and significance I had not been exposed to before. It is obvious that not all architecture resides in America and Europe, but it is god to see examples and have someone as smart and knowledgeable as [the professor] explain their meaning.”

“…terms of real world stuff, I think my internship over IAP taught me the most about real life architecture. Along with that, I learned in the firm that perhaps design is not nearly as much a part of an architects life as academia implies, which was eye-opening for sure. And not to be too negative, but it also made me realize just how unprepared I will be in architecture job coming out of college. I think though that this is not necessarily a fault of MIT, but rather the generic way architecture is taught in secondary education, with studios and the like that have practically no real world relevance.”

“…Level I is different in a sense that students have more freedom in the way they design. I gained in creativity, and skills to be critical about my work as well as others. [The professor] was an excellent teacher not only due to her energetic characteristic, but also to her theoretical approach to design work. Through the series of assignments, I learned problem solving skills and presentation skills as well.”

“I’ll have to go with studio (Level I) on this one. Although I had some traumatic times, as most people do at some point, it was definitely significant. It was pretty much THE CLASS. In retrospect, the designs and models are very unimportant but the struggles I went through and the thought processes I had to learn are huge.”

“I think my Level I studio...taught me the most about my personal style of design, which I really enjoyed. For the first time, I felt as if I was truly being "the architect" as opposed to my teacher being the architect and me the student.”

“The urban planning class (4.250J/11.001J) probably changed the way I thought about architecture more than any other class I have taken. It forces you to place buildings in their greater social and historical/cultural context. It gave me a different perspective on design, and I think [the professor] is a regular genius.”

“…You have to know CAD to be marketable and it’s extremely beneficial to know how to do computer renderings. But you don’t want to know too much b/c then you’ll end up ONLY doing that!!”

“[4.411]...helped reinforce the thinking about things like natural lighting and ventilation and solar heat gain while designing spaces of different function. It was sort of like a super-focused mini-studio in a lot of ways.”
3) **Of the classes you completed within the architecture department, which class/es did you least enjoy? Please explain.**

<table>
<thead>
<tr>
<th>Studios</th>
<th>In General</th>
<th>Sheer stress, lack of direction, and too much competition.</th>
</tr>
</thead>
</table>
| 4.125, 4.126 – Level I | **Professor did not understand that undergraduates are in fact committed to becoming professional architects.**  
Although sometimes professor would sit around and listen, he was more of a lecturer and did not communicate well with students. This does not make for a good studio professor.  
Professors don’t understand that MIT rules are there for a reason (ex. MIT sports from 5-7:00 PM rule, etc.)  
There was no teaching, not of design, not of anything. | |
| 4.104 | Really didn’t learn any useful skills or information.  
Very stifling class that did not encourage individual design approaches, but rather strictly regimented around the over-practical, such as ADA compliance and title blocks, etc.  
Grades seemed dependent not on design but on the quality of technical drawing which is unfair as the class did not even teach these skills well.  
Professor did not provide direction and had little contact with students.  
Did not foster any presentation skills. | |
| **Required Course** | **BT** | In General | **The BT department does not help students realize the practical application of the subject matter to architecture. Important information often gets lost among numbers, words and less than interesting projects.**  
Classes poorly executed. |
| 4.440 | Too theoretical and hypothetical – i.e. not enough problems, only memorization from which concepts did not get through to students.  
Administered more like a history course than a structures course – too many slides, not enough structures.  
Lecturers were terrible, such that even if some of the subject matter would have been useful, nothing was learned.  
The two lecturers took what could have otherwise been a useful class and made it too boring to learn from.  
Many supplemented this class with Course 1 (Civil Engineering) structures courses because felt they learned too little.  
Had the potential to be a good class, but was carried out poorly.  
Textbook was inappropriate. | |
| 4.401 | Poorly organized with a poor professor.  
Important information, but presented in a boring manner.  
Final projects were irrelevant.  
A lot of important information was left entirely out, and by course’s end, most people had forgotten the material that had been taught. | |
| 4.411 | **A grueling class** that takes up time it isn’t worth. Doing tedious tests and data collection was worthless and did not teach us a thing.  
Very boring class and you learn very little. The time you spend working on the class outweighs what you get from it.  
Exercises did not seem appropriate or interesting. | |
<p>| 4.42J – Fundamentals of Energy in Bldgs. | Poor course material, just was not exciting. |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Grading</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA 4.301</td>
<td>Because this course (as with 4.605) was an Institute HASS-D, it was full of students with no real interest in the subject matter. This prevents any interesting discussions, etc., which might have occurred otherwise. Really not fair to Course 4 Department students.</td>
<td>Grading should not be based on how “crazy” your project is, but rather how well thought out, etc. Did not teach what future architects should learn from a visual arts class. Too much of a fluff class. Not enough substance. Did not help me in anything I did after I took the class, and only made me feel like I lost 6 hours of my time a week. Did not really get anything from the class. Did not provide an adequate history of the visual arts.</td>
</tr>
<tr>
<td>HTC 4.605</td>
<td>Professor is cold and not pleasing to learn from, hard to respect, and not at all motivating. Students who have had this professor for other classes acclaim him – then why does he do such a poor and boring job with this class? Lectures were too large, filled with non-architecture students with no real care for the subject, non-interactive, and therefore very boring. Subject material too broad yet ignored entire last century of architectural design. Material presented in such way that only temporary memorization is possible or encouraged. Class should be geared towards learning to analyze the history of architecture, not just knowing a bunch of data. History is the backbone of architecture, yet not presented in interesting way. Pace of class ridiculously full, need more time to learn subject and absorb enough to find the subject interesting. Glad I took this class as a freshman, because to take it on grades would not have been pleasant, but as a result did not learn a thing. There was not enough theory taught in this course.</td>
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<tr>
<td>Comp. 4.206 – Visualization</td>
<td>Poorly executed and frustrating. The course idea is good and thus could have potentially given so much more. Lectures need revision – painful and uninformative. Neither TA’s nor professor seemed to really know how to use the program and thus left students on their own to solve problems and answer questions. Administrators not really there to help students. Class size too large with not enough computers for all, nor could the required software (Alias Wavefront), support the number of users. Although the exercises were often useful, learning only one program (Alias Wavefront) is not much of an introduction to computer modeling. I have never used Alias again, and probably would not know how to do it. Alias is not a good program to teach people with no background in AutoCAD.</td>
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<tr>
<td>Architecture Electives 4.203</td>
<td>Too much time spent overcoming computing obstacles and not enough time learning.</td>
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<tr>
<td>4.602</td>
<td>This course was very boring.</td>
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<tr>
<td>Art &amp; Landscape</td>
<td>Too much of a fluff class. Not enough substance.</td>
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<tr>
<td>Out of Major Electives</td>
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</tr>
<tr>
<td>Not Currently Offered</td>
<td>AutoCAD Class</td>
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<tr>
<td><strong>Poorly organized and executed.</strong></td>
<td><strong>Not enough hands on equipment and too many students.</strong></td>
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<td><strong>Pointless and too much work.</strong></td>
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</table>

- "[4.301 – Foundations in the Visual Arts] was useless. The professor...had no idea of what future architects should be doing in a visual arts class. Maybe a class like this one should be taught, but after people have learned other basic and more useful tools, like drawing, photography, painting...It did not help me in anything I did after I took the class, and only made me feel like I was losing 6 hours of my time a week."

- "4.301 and 4.605, because they were HASS-D’s, which means they were full of a bunch of stupid frat boys with no real interest at all in the subject matter that killed off any interesting things that might have happened in those classes."

- "4.605 was least enjoyable, mostly because I felt the pace was slowed down (due to it being a HASS-D, which is open to the entire Institute). There was not enough theory or focus on modern work, and many lectures were non-interactive, which made them long and boring."

- "History of Architecture – Well first [the professor] is at a disadvantage because that lecture hall is the kiss of death in the morning, especially with the lights dimmed for the slides. But also, I found the pace of that class ridiculous. I think there is a serious problem in terms of educating undergrads about architectural history. There is this attitude that we’re just supposed to have picked it up somewhere, somehow. “C’mon guys, this is your backbone.” [another professor] pleaded, once. When? Don’t shovel stuff down my throat and expect me to regurgitate it neatly for you. If you want me to learn, give me some real time, so I can really read everything, really learn something...”

- "4.605. That was the most useless class I took and I don’t remember anything at all from it. The only purpose to the class was to test your memory, like flash cards. If you were good at memorization, you could do really well. If the class was more geared towards the learning how to analyze the history of architecture instead of knowing the date, place and architect for buildings, it would have been wonderful."

- "...I hated 4.104...It was completely stifling and stupid; instead of encouraging the students to develop their own design approaches and begin to get a grasp on having ideas of their own, it was a strictly regimented horrible class...I blame 4.104 completely for the lack of good presentation skills that we undergrads exhibit...”

- "...[The] biggest reason for not enjoying classes: classes when I feel like the amount that I’m actually learning is heavily outweighed by the time spent. For the amount of time spent in 4.411 compared to amount learned, it’s not worth it.”

- "Structures – the in-class versions. These were so theoretical and so mired in hypothetical physics and mechanics, that I took absolutely nothing away from them. I memorized what I had to to pass the tests, but not a single thing ever made sense to me, and certainly none of it has been useable to me in practice (simply because I do not understand the concepts still – it would be VERY useful to me if I understood it). These classes should be taught with much less emphasis on the theory behind the numbers and equations taught. To this day, the one service I cannot provide for clients is structural calculations.”

- [In regards to Building Technology classes] “If I wanted to solve applied physics equations, I would have majored in something else.”

- "4.401, Introduction to Building Technology. The professors were bad, the organization of the class was messed up, despite the interesting materials covered, the entire class ended up complaining about the course throughout the term.”

- "Let us not also forget 4.206, which would be better if called “how to use Alias Wavefront.”

- "4.206...was extremely frustrating – the class was too big (about 40) there weren’t enough computers or TA’s (only 2) to go around. Alias was overloaded during class-time and crunch-time for the assignments. It always ran very slowly and frequently would not run at all because there were too many people trying to use it at once, and it also frequently crashed.”

- "4.204/3 makes a strong showing [as least significant class]. I took it the first time [it was] taught it (I think)...I seem to recall that AutoCAD wasn’t very stable on Athena and I crashed frequently while you were trying to do your work. I guess that’s a result of using/teaching very new technology, but it didn’t work so well in a practical large class setting. I suppose the living groups are all hard-wired now, but at the time we had to do our work in a campus cluster. I guess I spend too much time overcoming obstacles, particularly computer problems, to actually spend any time learning.”
**4) Of the classes you completed within the architecture department, which class/es did you find least significant to your education? Please explain.**

<table>
<thead>
<tr>
<th>Studios</th>
<th>In General</th>
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<tbody>
<tr>
<td></td>
<td>Studio creativity level is great, but they are impractical and thus useless.</td>
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<tr>
<td>4.101</td>
<td>Although course teaches some basic architectural concepts, generally did not enrich education.</td>
<td>Too much time spent on the physical act of creating a model without thought to the significance of the model, to understanding how it transfers to a two dimensional plane, or to how a major concept can simplify or even give meaning to a design.</td>
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<tr>
<td>4.104</td>
<td>Did not foster good design thought processes nor presentation skills.</td>
<td>Did not teach us even the basics we needed to make a drawing come alive – not in terms of technical rules, nor how to have them express your design.</td>
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<tr>
<td>Level I</td>
<td>Helped solidify my choice of a different career.</td>
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<tr>
<td>Required Course</td>
<td>BT 4.411</td>
<td><strong>Too much time data collecting tasks that did not result in any learning.</strong></td>
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<tr>
<td>VA In General</td>
<td>Visual Arts classes contributed nothing to my education. They only took away time that could have been spent on significant work.</td>
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<tr>
<td>4.301</td>
<td><strong>Geared towards general MIT undergraduate, not Course 4 students.</strong> I did not actually learn anything, and thus the class felt like a waste of time.</td>
<td>Many people took the class because it was a HASS-D that did not require much writing. People did not seem to take it that seriously. This class did not inspire any feelings, was scattered and disorganized. Whereas appreciation of the visual arts is important, this class has no significance in design studios. The relevancy of this class to the rest of the department was never made apparent. Professors were not very good. They need to learn how to extract the talents each student possesses as an individual. They must be less absorbed with own work and tune into whether students are actually learning anything. Most of the work that came out of this class was either insignificant or just bad.</td>
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<tr>
<td>HTC 4.605</td>
<td><strong>This class did not inspire any feeling.</strong> Too much information for one semester - came away with little to nothing.</td>
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<tr>
<td>Comp. 4.206</td>
<td>*****Although can understand importance of visualization, this course was more centered around learning one specific program (Alias) which itself has little application outside the classroom.</td>
<td>Don’t think we should spend education time and money on learning computer software. This class should have taught visualization. Class is well intentioned as visualization is an important subject matter, but is carried out quite poorly. Content of the lectures were not pertinent to coursework, as so few people actually attended. After the third week, you stop being taught new things, and focus merely on producing a pretty rendering. Beyond the first assignment, the class failed to nurture visualization skills. The frustration and the computer errors are what come to mind when I think back on this class.</td>
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Architecture Electives

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<thead>
<tr>
<th>Course</th>
<th>Notes</th>
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<tbody>
<tr>
<td>4.203 Geometric Modeling</td>
<td>AutoCAD and Radiance are <em>useless</em> in a professional setting. Was not even a helpful resource for studio. Question the value of computer modeling for design.</td>
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Out of Major Electives

<table>
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<tr>
<th>Course</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Intership</td>
<td>Actually developed computer skills almost completely outside of academic career in internships.</td>
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Not Currently Offered

<table>
<thead>
<tr>
<th>Course</th>
<th>Notes</th>
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<tbody>
<tr>
<td>“Undergraduate Computer Class”</td>
<td>Not useful in real world.</td>
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<tr>
<th>Course</th>
<th>Notes</th>
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<tbody>
<tr>
<td>4.203 (As Undergrad Class)</td>
<td>Too much time spent overcoming computing obstacles, and not enough time learning.</td>
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</table>

- "I hate to be overly pessimistic, but virtually no class other than the AutoCAD class has been useful to me. I honestly feel like I could have gone to a trade school for a semester or two and taken AutoCAD classes, and I would be exactly where I am today in my career (and $20K less in debt). Some of the VERY least significant, though, were the history class and the studios. The history class covered 3000 years, caveman to skyscraper, in one semester...another class I do not remember a single thing from. I am quite embarrassed when I tell people that I have a BS in Architecture but I do not know who so-and-so famous architect was. The studios, while quite brain-flexing and creative, were also useless...I have never seen a design problem come anywhere CLOSE to anything we ever did in studio, and again, I am quite embarrassed to tell clients that I do not know how to design a traditional Georgian-style residence, or what elements make a Mediterranean building unique. I cannot believe issues of budget and building codes were NEVER once brought up in studios...these are the two major issues that define what can and cannot be built, and I had never seen a building code book nor seen a construction estimate sheet prior to graduation."

- "[The least significant course is the] lab part of 4.206. When the [heck] am I ever going to use Alias in architecture? I really resent having had to learn it, especially when the graduate version of the course...uses AutoCAD and other programs that are actually applicable to the professional world of architecture. I understand that 4.206 is not all course 4 students, but since the number of total students is a problem anyway, maybe a separate Course 4-only class should be created, like they’ve done with 4.301/302. Or perhaps just a separate lab section, since the lectures don’t need to be different. And that arch-specific lab could learn AutoCAD and 3D Studio Max or something similar, on PC’s instead of Alias on the SGI’s."

- "Level I. There was no teaching. Any actual instruction was done by the TAs. The teachers introduced the project and told you how incompetent you were at the end, but they never actually taught you how to design. Design was something you had to figure out on your own, the teaching staff was in charge of letting you know how short you fell of your goal...I learned very little. It actually solidified my career choice: I am now in Medical School."

- "By far, 4.101. There are some basic architectural concepts, such as the ying-yang, that were introduced in this class which will always come back in my architecture, but as a whole, my knowledge of architecture was not enriched by my taking this class. So much time was spent in creating physical models, when we really did not know what the significance/use of those models were. Yes, we learned to think about space, but not how to transfer that to a 2-dimensional surface. What about the significance of conceptual sketches? Or how a major concept can simplify, or give meaning, to a design?"

- "...[Since] I am now in a graduate program that uses 3D computer modeling, physical modeling and traditional drafting interchangeably to develop design work, I have really come to appreciate the potential of CAD and modeling software to question spatial biases and explore the material generated in other media. I don’t know how 4.203 [Geometric Modeling] is being taught at the school now, but I really have come to see that class, as taught while I was a student, as a lost opportunity."

- "Part of being a (good) teacher is to find a way to extract the talents any student possesses, and show how to use those talents effectively. The teachers I had [for 4.301] were too busy posturing their...“west village artists” routine than [caring] whether anyone was learning anything. The point is, all the Course 4 classes I took were pertinent (although maybe I didn’t realize it at the time), but they were all made or broken by the talent leading the class."

- "...4.301 b/c it was not insightful nor very visually challenging. I felt as if MIT students were coming up with techie solutions to artistic problems."

- "...I have found at least a nugget of relevancy in very class I took, but some of them took longer to realize than others."
5) Of the classes offered through the architecture department, were there any classes you expected to be significant to your education that did not meet your expectations? If so, how might they have been improved?

<table>
<thead>
<tr>
<th>Studios</th>
<th>In General</th>
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<tbody>
<tr>
<td>Ex. 4.101, 4.104, 4.125, 4.126 – Supposed to be the ultimate place where concepts, ideas and technology all came together, but more guidance is needed to achieve this.</td>
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<tr>
<td>Many critical questions never get answered, such that at the end of the process, you may have a great looking model, but still don’t know if your design “works”.</td>
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<tr>
<td>No glimpse of how studios work in the real world, i.e. students’ projects would be vastly different if asked to take real world elements into account.</td>
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<tr>
<td>Among different professors, undergraduates wound up with great disparity in skills and skill levels.</td>
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| 4.101 | Helpful only because did not have any previous experience in architecture, so at the least it was a glimpse into the design process. But it is not a well-rounded or well-educated view, as the limited modeling materials and techniques used support. Instead, you learn to use materials that you will probably not use again in a studio. |

| 4.104 | Course catered to those who were “scared” of drawing, rather than just teaching. Drawing portion of course completely uninspiring. Tried to be overly practical, but failed at that – should have helped foster our minds. |

| Level I | Did not learn anything from this class, not even design. Hoped to finally learn about drawing and notions of design, but instead was expected to have learned everything already. **Professor tended to dominate over projects and overall progress. |

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<tr>
<th>Required Course</th>
<th>BT</th>
<th>In General</th>
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<tr>
<td>Need to be more rigorous in general and serious with regards to learning how to do calculations rather than relying on physical models.</td>
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| 4.401 | **Needs to focus more on real architectural situations, including stress tests of steel, concrete, etc., with field trips and discussions of how materials and their use may affect design. Professors have little grasp on how much students are actually learning. |

| 4.440 | A more mathematically rigorous course was in demand. Would have preferred taking structures in the Course 1 department because would have been more rigorous. Could have related more to analysis of structural systems, with a more relevant textbook. Left with little understanding of structures. Cannot determine if a non-standard building could be made or if certain designs are even possible. |

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<tr>
<th>VA</th>
<th>In General</th>
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<tr>
<td>Was looking for more of a background in the fine arts from MIT, but the program did not live up to expectations.</td>
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| 4.301 | Picked visual art concentration because was interested in visual arts, but instead learned a bunch of nothing. Perhaps too much stress on unconventional thinking. Majority of students have never been exposed to this kind of art before, and thus the resulting work is generally not very good. Still am not sure what I learned from this class, aside from maybe how to turn trash into a meaningless art project. |
4.104

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4.101, 4.104, just kind of learned how to letter, so I'm just going to trust you guys to go ahead and do that method of teaching us how to letter. I didn't like because we learned nothing... [In] terms of drawing, it didn't teach us even the basic technical side, like the rules of cutting plans, what is poché'd and not, we learned a little about line weights but there is definitely more to drawings than line weights. I still feel that I don't know how to really draw, and more importantly (more important than the technical stuff) is how to make them show what you want them to show. How to make them come alive and be beautiful rather than all the required lines are there... Many more examples of good drawings don't know how to really draw, and more importantly (more important than the technical stuff) is how to make them show what you want them to show. How to make them come alive and be beautiful rather than all the required lines are there... Many more examples of good drawings don't know how to really draw, and more importantly (more important than the technical stuff) is how to make them show what you want them to show. How to make them come alive and be beautiful rather than all the required lines are there... Many more examples of good drawings.

Out of Major Electives

Not Currently Offered

Introduction to AutoCAD

Had the potential to be very useful, but ultimately was not.

Excellent class, but tried to cover too much material in a too short a period of time. Two terms would allow for more detail. All other schools have more than just one term of required architecture and art history.

A visualization class is a great idea, but this one needs improvement. Lectures were unmemorable, not enough room to save work at the end of the class was horrible. Bottom line: this class should be less software, more visualization.

Wish it were actually a sculpture class. Was too similar to 4.301.

This class would have been better if it was more intuitive rather than straight math. It was useful, but could have been better.

Because of this course's poor execution, it was a turn-off to computers.

Had the potential to be very useful, but ultimately was not.

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• "4.101 was not as significant as I thought it would be. It was helpful only because I did not have any previous experience in architecture, so it gave me a glimpse of the architecture design process, which led me to declare architecture as my major. But if it's a class that is supposed to allow people to get a view of architecture, then why not make it more like the real thing? The modeling materials and techniques of the class did not make sense. It is somewhat understandable that kitty litter and homasote are cheap, but why not use cardboard or chipboard or at least some kind of material that you could possibly use in the future, if you decide to continue with architecture?...

• "4.104 I didn't like because we learned nothing... [In] terms of drawing, it didn't teach us even the basic technical side, like the rules of cutting plans, what is poché'd and not, we learned a little about line weights but there is definitely more to drawings than line weights. I still feel that I don't know how to really draw, and more importantly (more important than the technical stuff) is how to make them show what you want them to show. How to make them come alive and be beautiful rather than all the required lines are there... Many more examples of good drawings don't know how to really draw, and more importantly (more important than the technical stuff) is how to make them show what you want them to show. How to make them come alive and be beautiful rather than all the required lines are there... Many more examples of good drawings don't know how to really draw, and more importantly (more important than the technical stuff) is how to make them show what you want them to show. How to make them come alive and be beautiful rather than all the required lines are there... Many more examples of good drawings don't know how to really draw, and more importantly (more important than the technical stuff) is how to make them show what you want them to show. How to make them come alive and be beautiful rather than all the required lines are there... Many more examples of good drawings don't know how to really draw, and more importantly (more important than the technical stuff) is how to make them show what you want them to show. How to make them come alive and be beautiful rather than all the required lines are there... Many more examples of good drawings.

• "...[When I took 4.104], I felt that [the professor] should not cater the entire class towards people who are "scared" to draw... I also thought that drawing mufflers was not the best choice of subject, only because it is totally uninspiring... I really do think the majority of people would be thrilled to have a model to draw. It's so rare to get that opportunity... [Also], the kind of feedback we were getting. The "well, everyone I know just kind of learned how to letter, so I'm just going to trust you guys to go ahead and do that" method of teaching us how to letter. I mean, not even giving us an example to practice with... [In] general, I'd say 4.104 should be pushed to just draw and draw and draw. To experiment with drawing techniques. I really think there should be less focus on design... or maybe just to take a few weeks and do generic arch. drawing assignments. But really go nuts drawing. Perspectives, even. Two point perspectives. Yes, in 4.104. C'mon, we're MIT students. We're not stupid. I swear.

• "...The studios, 4.101, 4.104, 4.125, 4.126, are supposed to be the ultimate place where concepts, ideas, technology, all come together to create a physical product that can be experienced. However, in order to do that, especially with students at our level of education, guidance is needed... However, many times I felt lost, especially in... 4.125, not knowing which direction I should be thinking in terms of designing. There were certain critical questions that seemed to never get answered - Is the design good/bad? Do my spaces make sense? Is there something I am forgetting, or doing too much of? Should I be doing less models, more sketches?, etc. This kind of guidance and assurance I felt was missing in

<table>
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<tr>
<th>Course</th>
<th>Description</th>
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<tbody>
<tr>
<td>HTC 4.605</td>
<td>Covers too little 20th century architecture. There needs to be more emphasis on modern elements of architectural history.</td>
</tr>
<tr>
<td>Comp. 4.206</td>
<td>Expected class to be cutting edge, useful, and expansive in its teaching of computers as a tool for architectural design. Instead learned one program that had no bearing or relation to anything else done in the department or in the professional world.</td>
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<tr>
<th>Architecture Electives</th>
<th>4.322 - Sculpture</th>
<th>Wish it were actually a sculpture class. Was too similar to 4.301.</th>
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</thead>
<tbody>
<tr>
<td>4.42J - Energy in Buildings</td>
<td>This class would have been better if it was more intuitive rather than straight math. It was useful, but could have been better.</td>
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<tr>
<th>Out of Major Electives</th>
<th>Introduction to AutoCAD</th>
<th>Because of this course's poor execution, it was a turn-off to computers.</th>
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</thead>
<tbody>
<tr>
<td>Undergraduate Computer Course</td>
<td>Had the potential to be very useful, but ultimately was not.</td>
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</table>
my studios, and in the end, it makes me wonder how significant these classes were to me. I might have made a pretty-looking model, but does the design really work?"

- "My first semester of Level I was a disappointment to me. Coming off of 4.104, I was hoping to finally learn some things about both drawing and this illusive notion of “design.” Instead, I felt like I was expected to have already learned it and be ready to apply all this knowledge that I didn’t have. As a result, I ended up being totally dominated by the professor who controlled my design, drawings, modeling, and overall progress. It was a pretty big let-down and probably the beginning of my disillusionment with the Department."

- "Studio: There was a wide variation in experience with studio. That’s most appropriate for a graduate student setting. I think. Among undergraduates, we left with a great disparity in skill levels. In the fall of Level I, one class had to do presentation drawings in ink while the other (mine) did final crits on trace with messy models. I went home one summer and took a drafting class at a community college to supplement my education because I wasn’t learning enough practical things – how to draw or even read plans. I guess I’m saying that the free-form chaos is probably great for grad students, but the undergraduate curriculum should include more consistent and specific knowledge items.”

- "Studies – useful to some extent in the real world, but I found that much of real world architecture is working to meet budget constraints. This should be an issue in the design problem. I think the projects would look significantly different and make students really think about the client’s needs."

- "4.301 – This was an interesting class, but I have a strong, very strong opinion to take this of the required list. As a visual art concentrator, I have had enough of the [superficial] visual art classes here. I picked visual arts because I was interested in just that, but you know how 4.301 is…when you are swamped with other work, and you [have to] pull an all-nighter doing stupid art [projects, it’s terrible].…[4.301] is a choice for the rest of [MIT’s] undergrads, except us. We [have to] take it, and if I have to pay 5000 dollars for that kind of class, of course I’m going to be [angry]. The visual arts department [is terrible], I’m very displeased with it, and it should have little/less relation with the architecture department. And I’m also very disappointed that there is not a single drawing class in this whole school that is offered to undergrads, or especially architecture undergrads. Don’t we [have to] learn how to sketch and draw? I think probably every other architecture school has one except for ours...Why do we [have to] go to Harvard to learn to draw? Take [4.301] out of the curriculum, and put in a traditional art class, or at least make it an optional thing, where people, especially architecture majors, can choose to take the stupid 4.301 version, or traditional drawing class…”

- "Visualization [was a class I expected to be significant that was not]. I was expecting to learn some useful program that I might be able to use in the future either in school or at work. Alias was not the appropriate program to teach. 3D Studio, FormZ, AutoCAD, PhotoShop, would have been much more useful. They should base this class on the Geo Modeling class for Graduate students."

- "4.206…this class was pretty useless also, it is called visualization, which is so important to architects, the intention of what they tried to teach us was good, but it was carried out so poorly. Visualization is a totally needed skill for architects to help portray and present effectively what is in our heads. [The professor] taught none of this, maybe in the first assignment of showing how to get to Hayden from 77, which was a vague assignment, but at least tried to show some sort of effective visualization. But the final project, which I don’t know how many people even finished due to so many errors and frustrations that I still feel when I think about the class, was not what the class was about. All we learned was Alias, which only [a couple of people] have had to use again...I wish I had learned AutoCAD and 3D Max instead, at least I could get a job then, but I don’t even think that I should be paying 5000 dollars per class to learn AutoCAD or any software program. If [4.206] is visualization, then I don’t think we need to spend a semester to learn about software...If it’s visualization that is required for the undergraduate curriculum, then let’s learn visualization, not Alias.”

- "...Unfortunately, I was so discouraged after the introductory [CAD course], I was loathe to try any others. And since it’s nearly impossible to get any entry level internship without computer skills [this was a bad thing]."

- "I wished, after the fact, that I’d taken structures through Course 1 because that would have been more stringent. Maybe it’s just because there’s one semester, but I left with very little understanding of structures..."
6) Was there any subject matter that was not offered through the architecture department while you were a student that you think would have been a beneficial addition to the BSAD curriculum? Do you feel these courses should be mandatory or electives?

| Studio For Studio | **A course that builds presentation techniques, model building techniques (including material choice), drafting techniques, etc.**  
Ought to emphasize that we ought to understand why we design, where we think we are going with them, etc. | Mandatory |
|-------------------|-------------------------------------------------------------------------------------------------------------|----------|
| HTC In General    | An HTC course with more “critical discourse” as I didn’t have enough general knowledge of architectural history in graduate school.  
Emphasis needed on learning style proportions and other specifics that can be used as reference while designing.  
**Most leave MIT with no opinions on architecture.** Thus the way that this history and theory are taught to the undergraduates needs to be rethought and redeveloped, ex. to include modern stuff.  
Students should be required to take at least one more HTC class to supplement 4.605, as the current curriculum is unbalance between required Building Technology courses and HTC ones, not to mention that students wind up taking additional BT courses anyway to complete GIR’s.  
More HTC courses should be required, be they history of architecture or even art history. There are no art history courses required, and I think they could be useful to everyone. | Mandatory |
| Art History Appreciation | **The curriculum needs to include more courses on the theory of artistic masterpieces, as not enough currently exist.** | Mand. or M. Elective |
| 4.605 - Intro. to the History and Theory of Architecture | ***Needs to be split into two or more courses. Also, perhaps this class should be divided in such a way that one is geared towards architecture majors, as opposed to the entire Institute as it is now.  
There are too many slides and not enough discussion or theory.** | Mandatory |
| Modern Architecture | A course which teaches the history and theory behind modern/current architecture is needed.  
Students need to be pushed to really consider existing and developing architecture, and use these thoughts when designing.  
A design seminar that approaches recent architecture from a design bent, not historical, would be a great addition. | Mandatory |
| Non-Western Arch. | MIT undergraduates would benefit greatly from learning more about non-western architecture. | |
| Architectural Theory | **Undergraduates in the Department are the ones with the least appreciation of theoretical issues. Theory should be influencing our designs, or at least our thought processes.  
For students in the design discipline, perhaps an architectural theory course should replace 4.301/302.** | Mandatory |
| Building Technology In General | Students should have the opportunity to follow a case study, involving field trips. (Study a building as it is built from beginning to end).  
More hands-on activities, perhaps include actually building something in the real world. | |
| Construction Methods and Practices | ***A course that teaches how to put a building together, focusing on different materials – perhaps even offer a separate course per material (ex. concrete, wood, etc.). A class that delves into project management, along the lines of the Course 1 class 1.40. | Mandatory |
| Structures | Emphasis on **practical problem solving** is needed.  
A second **structures** course that goes further into **structural theory**. |
| --- | --- |
| Building Systems | An undergraduate version of the graduate course **Integrated Building Systems** would be so useful.  
A class that covers **electrical, plumbing and mechanical systems** within a basic building would be important for anyone wanting to be an architect. |
| Computer In General | A **computer course** that introduces students to **software** including: AutoCAD (2D and 3D), Photoshop, PageMaker (for portfolio layout), FormZ and or 3D Studio Max, Lightscape, Dreamweaver (for Web editing). Important that students understand these can be used as options.  
A **computer course** that introduces students to **computer tools** such as: scanners, plotters, digital cameras, laser cutters, 3D plotters, slide scanners, and other hardware available in the department as options.  
There should be more **computer visualization/computation** classes. They should then be offered as a concentration, or at least allowed to satisfy department requirements. This would be the only way to make these courses fit within the existing mandatory classes schedule. |
| Split 4.206 for Majors and Non-Majors | Since the class size is so large, and the class is actually mandatory for Course 4 students, perhaps it should be split into two courses (like 4.301/302 before it), or perhaps into a lecture and a lab class.  
If the class were split, the architecture major version of the class should teach AutoCAD, 3D Studio and on PC’s, not SGI’s. |
| AutoCAD | AutoCAD is the one skill that can **get you a job straight out of college**. Important to learn how to use AutoCAD to aid in design. |
| VA In General | **More traditional/straightforward art classes**, like drawing and painting, should be brought into the curriculum. Should be able to apply them to course requirements.  
**Graphic design, drawing, painting**, or other fine arts should be incorporated into the Visual Arts department, as students now just skim the surface of the visual arts.  
**More selection of elective art classes**, such as drawing, painting, etc., as these can become useful skills for aspiring architects. Students shouldn’t have to rely on Harvard and other schools to take these classes. |
| Drawing | A **pure drawing course** would be an asset – free hand drawing and/or painting. One can learn to understand what they see better when they have the skill to recreate it in some way.  
Drawing course, especially **freehand drawing** and **perspective drawing** – very important skills for graduate work, thus currently at a disadvantage. |
A drawing class should foster our drawing skills such that we can use them to help us design. Need to be taught the value of sketching plans, sections, elevations and perspectives as part of the design process. All architecture students need to learn or at least practice sketching and drawing.

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<tr>
<th>General Department</th>
<th>Portfolio</th>
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<tbody>
<tr>
<td><strong>There is a great need for a portfolio development/making course</strong> – perhaps it could be offered over IAP.</td>
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<tr>
<th>Undergraduate Research Opportunities</th>
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<tr>
<td>There is a <strong>great lack of Architecture UROP's</strong>. They do not really exist unless you make them up yourself. And Media Lab web design UROP's are hardly for architecture students. These don't involve research and should not be posted as Architecture UROPs.</td>
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<tr>
<th>Travel/Study Abroad</th>
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<tr>
<td>The undergraduates get totally <strong>neglected in terms of study abroad</strong>. Any and all travel related classes are for the graduate students in this department. Yet these kinds of experiences are so important to an architectural education.</td>
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<tr>
<th>Interior Design</th>
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<tr>
<td><strong>We ought to learn some degree of interior design.</strong> Clients will always ask for your opinion on such things.</td>
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<tr>
<th>Environmental Psychology</th>
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<tr>
<td><strong>An extensive selection of environmental psychology</strong> courses.</td>
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<tr>
<th>Communication Skills</th>
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<tr>
<td><strong>Architects must learn how to communicate.</strong> Perhaps this should be incorporated into studio.</td>
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<tr>
<td>There should be opportunities for students to <strong>work with outside people</strong> acting as clients.</td>
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<tr>
<th>Specific Knowledge</th>
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<tr>
<td>The undergraduate curriculum should include more consistent and specific <strong>knowledge items</strong> – for example, drafting.</td>
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<tr>
<th>Urban Planning</th>
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<tr>
<td>A class that <strong>relates architecture to urban planning</strong> would be useful.</td>
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<tr>
<th>Professional In General</th>
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<tr>
<td><strong>Relate architecture in school to what it is really like in practice.</strong></td>
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<th>Budgets</th>
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<tr>
<td><strong>A class that teaches about budgets</strong> – cheap vs. expensive building techniques, for example.</td>
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<tr>
<th>Professional Practice</th>
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<tr>
<td>A course that explains the <strong>business side</strong> of professional practice, including contract negotiation, bidding process, AIA documents, construction documents and administration.</td>
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<tr>
<th>Technical Writing</th>
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<td><strong>This would be a course on how to write a proposal</strong>, etc.</td>
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<tr>
<th>“Careers in Arch.”</th>
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<tr>
<td><strong>There should be a seminar that details the opportunities and possibilities that exist in the professional world, and how to achieve these.</strong></td>
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"I feel the curriculum is a quite good and well thought out. However, as aspiring architects, you are almost required to try to learn everything. Design, drawing, history, materials, tectonics, theory, people skills, economics, management, legal issues, the list goes on. The more the curriculum is willing to expose the student body to all of these factors, the better! In return you will have students who will quickly realize whether architecture is suited for themselves and for those who do pursue, they can feel confident when walking into the professional setting of architecture."
• “Yes, I feel that there should be some course which teaches about the structure of the building industry as a whole. As undergrads, you are so concerned with all of these design issues that you are not exposed to how design is cohesively integrated with the clients, contractors, consultant, and other various agencies or institutions which get the design executed. Even though academics may argue that you don’t want to muddle the issue by introducing all of these other aspects of the profession, I still believe that it is so intrinsic to the profession, that denying it only hurts and misleads the student body…”

• “…[The] fact was that, my off campus job often had little to do with the fantasy work at school. I think classes that teach about contract negotiation, bidding process, AIA documents, construction documents, and construction administration should be mandatory…It’s a shame that studio projects so often dismiss very real issues like budget, and communication skills with clients.”

• “I think there should have been more “hands-on” activities. More actual building. More working with actual outside people acting as clients. Relate architecture in school to what it is really like. I think many of us recent alumni are shocked by how real architecture works. I left to go to law school. I know a few of my peers who are also leaving architecture to do other things. I think this shows the separation between school and work.”

• “…I think that splitting the Intro of Architectural History course into two semesters would be a good idea – I felt the one semester covered too much material without much time to emphasize the architectural ideas behind all those building we saw slides of…I really felt that my general knowledge of architectural history and theory was really lacking, as compared to my classmates from other architectural undergraduate programs.”

• “…Architectural history should be taught differently…probably spread out over several semesters. There needs to be an emphasis placed on identifying unique building styles building styles and much more teaching on classical and traditional proportions of building elements. Clients always want a certain “style” of building – they usually do not want you to conjure up something creative out of your head – and with little or no background in architectural history…”

• “I think the history of architecture needs to be better developed at MIT. I’m leaving here with no opinions of architecture in general other than [frustration]. I think the modern arch. classes the grad students take would be highly beneficial to undergrads. I think the faculty should push to encourage students to really consider architecture. Ask them why they’re doing this. Ask them what they like/dislike. Ask them where they want to go with this. I think it’s important to give students a better sense of where they are in life/their education by challenging them. I think a lot of my classmates feel like total underachievers. I have a…4.9 GPA and I can’t tell you why or what I have done to deserve this. [That should bother someone]. Doesn’t it bother you that a supposedly Stellar student feels completely unqualified to move forward in this world?…”

• “I wish that the architecture department would offer more drawing classes to its students, specifically freehand drawing and drawing in perspective. I think that knowing how to draw is a really important skill to have before continuing on to graduate school or work. Not requiring its undergrads to have some type of drawing class puts them at a disadvantage when applying to graduate school and constructing a portfolio that shows a range of media.”

• “…I don’t know if they are still offering a pure drawing class, but what I brilliant class! I would recommend that free hand drawing and/or painting be mandatory to all 4 students. I strongly believe you grasp a better understanding of design if you have to recreate something, medium notwithstanding, that already exists. How do you see it? How well does that come across in your work? By recreating a space or an object, can you see something different than when you simply look at it? That, in my mind, is design.”

• “Portfolio Development – should have been mandatory and taken early on in curriculum. Studio class should cover presentation techniques. A model – building class (covering different materials) and drafting class should be mandatory. (Perhaps just a different way of teaching 4.101). Of course, these basic skills are touched upon, but students are expected to pick them up as an aside (which seems to be the way MIT teaches in general, but architecture doesn’t have to be that way and shouldn’t be).”

• “I truly believe that there should be a class offered in both AutoCAD and PhotoShop that should be a requirement, rather than 4.206. As it is now, those skills put you at a definite advantage, and yet you must pick those skills up on your own or through a friend with extra time (a true rarity)! I know that MIT is supposed to put emphasis on drawing by hand, but I think 4.104 could theoretically focus on these skills (which in my opinion it doesn’t at all) and then studio could be the student’s choice between hand and computer. While I know most studios have that option, there needs to be the opportunity for ALL students to have that option, not just for the ones who know the programs.”

• “…I guess the grads get everything and the undergrads are neglected. Totally neglected. I think GSD has this Rome drawing program where you go to Rome and draw for a summer. Why isn’t that kind of thing offered to the undergrads here? And all the travel related classes are all grad classes. These kinds of experiences are so important to architectural education. This is something I missed out on, I feel like, because I came here [for school]. I guess we have the Japan program but that is so much commitment…But are there summer programs like Syracuse has, etc? Why do we have to pay so much extra tuition to some other university to go abroad for a less committed summer?”
7)  Please take the time to write out any other comments you may have about the curriculum as a whole or about specific courses offered. Any suggestions or ideas would be most appreciated.

<table>
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<tr>
<th>General Department</th>
<th>On the Department</th>
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<tr>
<td>• &quot;I love the department and am glad that I chose the major, but that doesn't mean there isn't room for improvement.&quot;</td>
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<td>• It is great how the Department is not overly competitive as it is rumored other schools are.</td>
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<tr>
<td>• Class size permitted one on one interaction between students and faculty that cannot be found in some of the larger Institute departments.</td>
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<tr>
<td>• MIT was a great stimulator of creative and theoretical processes.</td>
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<tr>
<td>• The close relationship between the Department of Urban Studies and Planning and the Department of Architecture should be emphasized, for it could be a great strength.</td>
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<tr>
<td>• The BSAD curriculum and material is not taught or presented in such a way that BSAD students can take full advantage of.</td>
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<tr>
<td>• Overall, I am not happy with the education I received for the amount of money paid. I may have learned a lot and even gotten a lot out of it, but I should have gotten more. Many of the hours spent were indeed worthless hours on worthless classes.</td>
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<tr>
<td>• It's hard to enjoy a class when you feel like the amount of time spent for the class heavily outweighs the amount learned.</td>
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<tr>
<td>• Females are at a great disadvantage in the professional architecture world, as well as within the MIT Department of Architecture community. The lack of female professors and role models in the department is appalling and disappointing, and certainly not encouraging. Architecture, in the professional world as well as promoted within the Course 4 Department, is predominately white male.</td>
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<tr>
<td>• Students in this department need more of a challenge than they are receiving. Even students with 4.9 GPA's feel like underachievers as they know they did little to achieve those grades.</td>
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<tr>
<td>• **A welcome to the department tour is needed. Being stuck in N52, undergraduates have no way of knowing that they have access to available resources from computers to plotters, to laser cutters and the N52 woodshop. Students need to be shown that these resources exist in a coherent, unified manner.</td>
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<td>• Undergraduates feel uncomfortable, out of place, and unwelcome in the main building.</td>
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<tr>
<td>• It is actually not easy to learn something like AutoCAD on &quot;our own&quot; time because this time does not actually exist in the department.</td>
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<tr>
<td>• **MIT Architecture Department needs to realize that breaking MIT community rules about credit breakdowns (units are equal to hours spent on and in a class), no class after 5PM to support participation in sports, and other rules keeps its undergraduates segregated from their community and is completely unhealthy to the mind, body.</td>
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<td>• Many opportunities in the department appear to be open for all architecture students, but are really only available for graduate students.</td>
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<tr>
<td>• More funding is needed for the undergraduates. Off campus facilities and equipment are far under par. Students pay hundreds for lab fees above tuition with very little in return.</td>
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<tr>
<td>• I think the graduate program is much stronger than the undergraduate in that it focuses much more on architecture and related issues.</td>
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<tr>
<td>• People from N52 should move up the street so that the undergraduate and graduate programs could be more integrated.</td>
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<th>As Preparation</th>
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| • "Overall, I found my education in architecture to be strong. I have been able to use much of what I learned in my professional experience, and the things I learned in my studios, building technology, and HTC classes have been valuable."
| • I harbor considerable doubts concerning thoroughness of MIT's architecture education. |
| • **Was never really made aware of class options. Whole process was vague.** |
| • Most schools accept very little of transfer credit from MIT. |
| • As preparation for a career in architecture, MIT failed miserably. |
| • Even students with exceptional grades feel completely unqualified to move on in the field of architecture. |
| • The undergraduates should be taught about things like AIA, and AIAS, and their importance in the professional world. |
| • Ended up applying to Medical School because felt had learned to little from MIT to know where and how to continue with architecture. |
| • Disparity between the profession and the education is too great. |
Working in the real world shows how our education leaves us **unprepared for architecture jobs** out of college. Perhaps a fault not of MIT but of the **generic way architecture is taught** in secondary education.

> "When I see people at other school’s first year work, the quality of the models and drawing compared to our first year stuff makes me want to cry."

### On the Curriculum

- "When MIT was first organized, it was supposed to be an art and engineering school, but we **lost our creativeness** along the way..."
- The BSAD program puts different people on very different career tracks. Perhaps this is something to embrace, even foster, i.e. use the 4 year program status to **broaden the degree** (include graphic arts, industrial design, construction management and real estate development as legitimate fields that the program might prepare you for).
- **BSAD curriculum** was too theoretical and unstructured.
- MIT needs to get **away from theory and creativity** to add some **glimpses of reality**.
- Program teetered between being an architecture degree and a **thinking degree**.
- Classes should reflect a **progression of skills**.
- Undergraduate curriculum unable to deal with the **type of student** that comes into the program. The majority of the undergraduates have spent a lot of time with **math and science**, and spend their freshman year doing the same. The result is students with a **weak background** in vital areas such as visual design ability, communication ability, ability to deal with abstract/non-scientific concepts. Yet are **never pushed to develop these skills**.
- The department should use the sophomore IAP to offer courses that would better orient their undergraduates to the non-N52 design experience at MIT.
- If visualization is required in the undergraduate curriculum, then the **students should learn visualization**. not Alias (or other computer software).

### On the Professors and Staff

- Why has the faculty never taken the initiative to ask students if they are satisfied with their education here?
- The students of any given department should obviously know the department faculty. It is deplorable that most of the undergraduates in the Course 4 Department **have never met the Dean**, and probably never will.
- A good professor makes a big difference. There are classes that you like because of material, or even just because you like the material. **But a good teacher can make even the most boring material digestible or even fun**. Or, on the flip side, take course material you like and make it un-enjoyable for a semester.
- **Active, clued-in advising replete with career perspectives** is very much in need.
- The majority of professors in the department do **nothing to even try and motivate students to get on top of anything**, from their careers to graduate school, nor do they even make an attempt to communicate with the undergraduates.
- **Professors need to make themselves available and help students focus** on where they want to be in terms of their architecture education and careers, and they need to do this from early on.
- Professors need to be **more encouraging**.
- Professors need to be **more in-tune** and have **more understanding** of studios and of other coursework that might also take up time (especially a problem of visiting professors).
- Some professors need to learn how to keep **hazing** out of the studios.
- Much of the design classes pay too little attention to the undergraduates at this school – many professors give the **impression that teaching undergraduates is a waste of time**.
- The Department needs more professors that **teach you how to think about problems** and don’t just try to obscure fundamental skills behind theory and architectural jargon.
- **Department administration and faculty** much more approachable and friendly than the Course 6 Department.
- **Course 4 Staff** is wonderful and very supportive. They should not change at all.

**HTC**

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**BT**

- For an "Institute of Technology," MIT has an extremely theoretical program, as in there is **too little emphasis** on Building Technology.
- Among graduate student peers, can see **lack of construction reality and knowledge**, but
- 4.42J was an alright course, although really basic and theoretical, and not very applicable to design, like all of MIT Architecture.

### Computer
- 4.206 is a good way to introduce students to computer modeling.
- It would have been nice if a course like 4.206 Visualization had aimed at an outcome presentable for a portfolio.
- “I won’t find a job unless I know AutoCAD.”
- AutoCAD is the worst possible influence on a fledgling designer in the way you think about plotting each line.
- Poor computer resources and poor computer staff. We cannot fit into the grand “e*topia” our Dean writes about when we are in the dregs of computer-land.
- All students should have the option of using the computer as a tool in studio; therefore it needs to be taught. Only one or two undergraduates per studio actually have the skills to use the computer.

### VA
- Visual arts concentrators are forced to take 4.301, which is a complete fluff class, when they are not even interested in that particular subject matter. No one else is forced to take it. It’s a waste of money.
- “I can’t emphasize enough my dislike for the visual arts department.”
- No one want to take time away from full and important classes to work on 4.301. It should be altogether removed from the required course list.
- Very disappointed that there is not a single drawing class at this school. Don’t we need to learn how to sketch and draw? Why should MIT students have to go to a Harvard class to learn how to draw?
- Visual Arts Department should have less of a relationship with the Architecture Department.

### Studio In General
- “I sort of have a love/hate relationship with studio…”
- Emphasis of Department to have us develop good designs rather than trendy and flashy ones is good. Also, trying to engage a lot of issues in a subtle way is good.
- Studios were really great in their method of design through sketch models, rough drawings and reiteration.
- **Too much is dependent on students picking up on the side, ex. modeling techniques, drafting techniques, computer skills, etc.
- Students should be made aware of various professors teaching styles to review as part of studio lottery process.
- After graduation, I used some of the problem solving learned, but none of the design.
- Students should take a studio class every term.
- There should be independent studios and/or workshops available for undergraduates.
- I overall enjoyed 4.101, but it seemed at times that the professor had favorites, and if you weren’t one of them, you didn’t enjoy the class as much.
- Still feel that I don’t really know how to draw. Don’t know how to make my drawing show what I want to express. 4.104 may teach a lot of the technical facts drawing, but there is a lot more to drawing than just line weights.

### Way They are Taught
- Professional studios are more about sensible solutions than designs that stand out from the others.
- Team collaborations should be encouraged, especially those that mix upper and lower level students
- One project per semester is bad.
- Studios much teach about working within budgets and within building codes.
- Never asked to ink a drawing in real life.
- Undeniably valuable to have professors anxious to discuss work, good or bad, then those who are content to sit back and not have a real opinion about all the sacrifice made.
- If the point of 4.104 was to teach drawing skills, then it really should have done so. It should have pushed everyone to experiment with drawing techniques, learn perspective drawing, perhaps focus less on design, or spend some time practicing drawing existing
Some professors **too self important** to impart their wisdom onto the students. It is more valuable when professors work with students to try and **find substance in their work and build from there**.

**4.104** could theoretically be used to focus on computer skills like AutoCAD and PhotoShop, as well as drawing, since it doesn't quite accomplish the latter anyway.

**Supplementing studios** with studies of film, literature and other architects made for better designs in the end.

**Resources**

- An option to **have work photographed** should be available for all projects at the conclusion of studios as works are so fragile and easily destroyed.
- Help with and understanding with regards to **storage of models** after conclusion of studios would mean a lot. We are students and don't have the luxury of office space.
- Studios **cost too much**. If you cannot afford the best and most materials, you can easily do poorly. It is deplorable that students have had to switch out of the design stream for not being able to afford the studios. **Money should be allocated within the budget to fund some degree of materials.**

**Professional**

- Not taught how to **read plans** or **conduct business** as an architect.

- "...Why have I never met, much less seen the Dean of my Department?..."

- "I think the problem with the undergrad curriculum here is its inability to deal with the kinds of students it gets. This is MIT; to get in here as an undergrad means you spent a lot of time with your math and science books, and before you come into the department, you spend another ridiculously intense year doing more science and math. The result is that most of us come in here with a really weak background in a lot of vital areas; visual design ability, communication ability, ability to deal with abstract, non-scientific concepts. And instead of pushing us to develop these skills, we get dropped in these terrible HASS-D classes and allowed in studio to really slide with the quality of our presentations. When I see people at other schools' first year work, the quality of the models and drawing compared to our first year stuff makes me want to cry."

- "I think that the curriculum/material that is currently a part of the BSAD program is fine. However, I don't think that it is being taught/presented in the way that BSAD students can take full advantage of. Much of this has to do with the teaching. I would like to have more professors...who teach you how to THINK about problems, and don't try to obscure fundamental skills behind theory and architectural jargon. (For all classes, not just design)...I just want to get the most out of my four years here, and leave knowing that I learned some valuable fundamental skills that I can take with me to work or graduate school."

- "In summary, the current BSAD curriculum (or at least the one from 93-97) is too theoretical and (ironically) unstructured. The classes (particularly studio) should reflect a definite progression of skills rather than an amorphous learning experience."

- "...I think the graduate program is much stronger than the undergraduate in that it focuses much more on architecture and related issues. I understand that there are many Institute requirements for undergraduates that take up a lot of time and thus prevent the Department from requiring more classes. However, I am sure the Department and the HASS office could come to some agreement on how many classes architecture students should take. Maybe some of the HASS classes required could come from the same group (HASS -D groups) rather than forcing them to take classes they are not interested in...."

- "...I think that much of the design classes give entirely too little attention to the undergrads at this school. I recognize that MIT's grad program is top notch, and attracts a certain type of student, but by the time I got to Level I, I felt that in general, most of the design professors considered teaching undergrads a waste of time, and the grad students were in general agreement."

- "It's great that there's a graduate program here, and I am glad I have had the opportunity to learn from [the grad students]. However, I think I can basically sum up the undergraduate program by saying that we are not in the graduate program...."

- "I know this is a controversy within the department, but I really wish MIT taught undergrads how to use a CAD program. Maybe not AutoCAD specifically, but one that is at least more standard than Alias. The argument against it is that it's wasting our money on something that is really 'easy' to learn on our own time or that is unimportant compared to learning how to design. But the truth is, it's not easy to learn on our own time because 'our own' time does not exist. Perhaps my freshman year I would've had time to teach myself but the resources (PC's) weren't available to me then. Even throughout my sophomore year, I wasn't made aware that I could use them, and I felt uncomfortable and out-of-place in the main building anyway, and it is important to know how to draft on a computer, and not only because it's an increasingly in-demand entry-level skill for many firms (in an ideal world, firms would hire students because of their design capabilities and not their computer skills, but that's not how it is)...We take all these "building technology" classes, but never incorporate the #1 technological tool of the 21st century into learning. It seems strange to me that an architecture student from MIT could graduate without knowing how to create a simple 3-D computer..."
model of a building (and doing it on Alias doesn’t count because firms don’t use SGI’s). Of course, this problem could be solved if it were incorporated into 4.206.

- “The one think I really hold MIT’s program above other is (or was) the focus on design through sketch models, rough drawings, and reiteration. I don’t know if CAD is in vogue now in the program, but I don’t think there is a single worse influence on a fledgling designer than plotting coordinates on a program to facilitate the design process...[The] core of architecture and design is the same now as when some dudes made the Parthenon...And last I checked, those cats were armed only with their wits, a straight edge, and an abacus to create structures that stand the test of time.”

- “Why has it taken student initiative to ask undergrads, more or less, if they are happy with their education? I’d really like to know, if one was made to answer that question, how many course 4 students would say yes, and how many would say no. And then I’d like to know if the administration even cares.”

- “…I also really value having been in [Ellen Dunham-Jones’ studio] because she was pretty much the only opportunity I had to learn from a female faculty member...But I can assure you, as a twenty one year old female trying to get her foot in the design world door, having someone you can see as a role model is extremely important...But in my four years here, I can honestly say that it has been more than once that I have felt my efforts at presenting my work have been met not with people who are trying to converse with you and engage you in a discussion about your design, good or bad, but are extremely self-indulgent and are more interested in sitting back together and nearly guffawing at your efforts which you have sacrificed so much to put together. These dynamics can be particularly disturbing when these people are all older males...I really do think the amazing lack of female professors in this department is a shame and I think the lack of Ellen’s presence in years to come is a huge, irreplaceable loss to the undergraduate community... However I really do ask of architecture faculty members, how am I supposed to be encouraged when I am hardly able to identify with anybody in this field, professional and academic?...Does it not strike you odd that our student m/f ratio is fairly even while the m/f faculty ratio is glaringly skewed?...I think there is a reason there are so few women out in the field compared to the ratio of women who are studying design in academia. I think this is the same reason why higher level classes at an Institution, even high schools, are predominantly white males. I believe it is because we are not being encouraged enough, and we are not able to identify with people who are living out our supposed goals.”

- “…More funding is needed for the undergrad department. We are cooped up in an asbestos-ridden warehouse structure off-campus with minimal (almost non-existent) under par equipment. We are forced to pay hundreds for lab fees above tuition with very little in return....”

- “Whenever there is a visiting professor here for a BT class, they always get really excited and load up the coursework. It’s great, of course,”

- “...I started out loving architectural design, and ended up applying to medical school because I felt I had learned little and had no idea of where to go next with architecture. The egos of the design faculty...got in the way of any actual teaching. Telling a student that their project is poor is not teaching, it is a form of hazing. The project pinup reviews at the end were exercises in emotional abuse and I learned little from the whole experience. Anyone who stuck with architecture after these experiences had to have so much love for it in the first place that no amount of insults could shake their faith.”
• "...I considered transferring to another college during my junior year at MIT because at that time I was having considerable doubts as to the thoroughness of MIT's architecture education, but most other schools would accept very little transfer credit from MIT's architecture department, and I would have been setting myself back at least a year (for which money was already an issue). After much discussion with other schools' counselors and my family, I decided to ride out my education at MIT and graduate, and take some time to work in the "real world" before deciding exactly what supplemental education I wanted to pursue. Overall, I enjoyed my experience at MIT, and I did find the architecture department a great stimulation of my creative and theoretical thought processes, but as preparation for a career, I feel MIT failed me miserably, and I would not do it again if I had to do [it] over."

• "...Thanks to the teaching and mentoring of some of my employers, I consider myself a fairly competent drafter now-a-days...for the last 8 months or so, I have begun working "freelance", on a contract basis doing drafting out of my home for several different architectural firms and clients. I would like to get my license someday, but I fear it will be a long road, since there are still a few significant gaps in my education that I do not often have opportunities to fill in practice..."

• "I am full of opinions – opinions concerning the role of computers in the department, and opportunities that seem to be open for all architecture students, but are really for the grads, etc. However, I think I have said enough said enough for now. If you're interested in more, let me know..."
The notes on this page are taken from a series of MIT administered course evaluations of the classes 4.302, 4.605 and 4.206. The purpose of reviewing these surveys was to compare the comments and opinions on surveys that were administered to each class as a whole, to the much smaller sample of returned surveys administered by myself to current undergraduates and alumni. After reviewing the course evaluations for 4.302 for the fall of 1999, and the evaluations for 4.206 for the years 1996 through 1999, and 4.605 for the years 1990 through fall of 1999, I noticed that in general the negative comments made were in accordance with my original survey results. There were, however, some differences to note. For one, 4.206 received more positive comments than it did from the e-mail survey, as did 4.605, although not as many. It is also important to note that the comments for 4.302 are indeed similar to comments made for 4.301 from the survey, indicating that this course was not changed significantly for architecture majors.

Lastly, please note that the majority of the comments that made it to this list were repeated at least twice among various surveys. There were also a couple of cases where I made note of comments made by students outside of the major.

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4.302 (Note, professor generally received above average marks.)

- This class should have taught more how to visualize space, especially since this version of the class is specially for Course 4 students.
- “How is this class different from 4.301 (all projects seem similar...why even separate students based on major?)”
- More attempts should be made to get students to experiment with various shops and shop materials.
- Broke boundaries in beliefs towards art and encouraged individuals to challenge own boundaries.
- Wendy presented ideas in a fun, interesting, logical and helpful manner.
- Examples shown were great, and the professor is extremely enthusiastic.
- This provided a new way of thinking and appreciation for the visual arts.
- Good in how learn nature of creative process to help in architecture.
- There should be more time for project development, and less for reading.
- Pieces are really “un-art” like and some were just ridiculous.
- Not motivated to discuss many articles that were read.
- More defined projects might have been nice.
- Interesting reading, but not too relevant.
- “Projects” are a waste of time.

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4.206 (Note, professor generally received above average marks.)

Spring 1996-Fall 2000 (Note, the majority of the following statements are direct quotes)

- It’s clear that software will come and go, but these general concepts will remain.
- A great class which you don’t need a lot of experience going into.
- Makes you think about visual application to virtually everything.
- Lectures and labs were well prepared and interesting.
- Good way to jump into world of computer graphics.
- Nice link between theory and applied lab work.
- The professor is sensitive to the students.
- Good, clean, concise – great slides.
- Class has a clear focus.
- Students learn each program to a small degree only because there is too much to learn.
The lectures to not go well with the assignments…maybe the lectures should be left out altogether.
Faster computers would be great – perhaps some equipment for video editing.
The course could easily be expanded into a two semester sequence.
Tutorials were not well structured and/or were behind schedule.
Too much work, you need more time for a class like this.
Written assignment were often unclear.
There ought to be an advanced class.
Afternoon lecture would help.
Need more disk space.
Pace sometimes fast.
(Course 6) There was a good focus not on complexity but on telling a story.
(Course 6) This is a refreshing course that should be required of all of MIT.
(Course 1) Perhaps using the same software the whole term would be of use.

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4.605 (Note, professor’s marks were mostly average, and then ranged from very low to very high.)
Spring 1996-Fall 2000 (Note, the majority of the following statements are direct quotes)
- This was a good and interesting class for non-architecture majors. I enjoyed it.
- One person said: he is a high quality professor, the kind you would expect from an institute like MIT.
- The course is too rushed, it should be split into two. It would help if students could absorb what was learnt before fed new information. Perhaps unit exams would help, rather than just a midterm and a final.
- Any questions asked of class were rhetorical, thus, there was no class participation, but this could have made the class much more interesting.
- Course should leave out the HASS-D motivated 20 pages of writing for the semester. (This doesn’t suit Course 4 students, i.e. may not be best format, but is the one that complies with the Institute.)
- Lectures were for learning the facts, while section was about analytic skill.
- The class focuses too much on memorization, and does not encourage enough understanding of architecture.
- Should concentrate on historical periods, rather than the specific dates of certain buildings.
- This course should encourage the application of knowledge, not only observation.
- Too much compromise between real site specific and broader comments.
- On exams, there should be less slide identifications and more analysis.
- Lecture should be more discussion oriented.
- More interaction in lectures would be great.
- Slides would be great if were labeled.
- “There has got to be a better way.”
- The professor refused exam reviews.
- Professor should treat interpreter and projectionists with more respect.
- Professor often talked down to students and lost his temper. He did not seem to enjoy teaching. More voice variation would help.
- Lectures don’t succeed in gaining student interest.
- Lectures need to be kept more clear and concise.
- A stretch break would help the monotony.
- Professor is knowledgeable but boring.
- Writing assignments were often only graded for grammar and spelling. The should less writing oriented and more about learning to write about architecture.
- Writing assignments did not always relate to lectures.
- This course should teach students how to look at architecture.
It would be great to look at something other than churches.
Would prefer only modern architecture, or at least more of it.
(Course 6) More modern architecture.
Look at fewer plans and more buildings.
More non-western architecture.
Papers were too off topic.
Class notes would help.

**Spring 1991 (46% response)** (Average to somewhat above average marks)
- “This course received favorable comments from the majority of the participants.”
- “Friedman is praised for being organized and concise in his comprehensive coverage of class material.”
- A few students say Friedman speaks in a slow deliberate way that is easy to keep up with, although many, however, feel that “his speaking is boring, dry and monotonous, and some find it hard to distinguish important from secondary details in his lectures.”
- “Recitations served mainly as discussion periods, although many students feel that they did not relate very closely to the lectures.”
- Papers were generally regarded as interesting and good exercises in critical discourse. The number of papers, however, were seen as an unfortunate necessity, and some commented that they seemed to come from a different class.
- “The exams presented were blasted as exercises in sheer memorization of slides presented in lecture. One person commented that ‘reading is not as important on an exam as knowledge of actual monuments.’”
- “Overall, students are disappointed that potentially interesting material was presented in a dry manner. A few [students] suggest changing the testing format so that slide memorization doesn’t count as heavily, and perhaps spreading the coverage of course material over two terms.”
- “Memorizing names, locations, and dates of some 130 slides is useless, and a bit below MIT standards.”

**Spring 1992 (58% Response) (Above average statistical marks)**
- “Professor Friedman, the lecturer of 4.605, is thought of very highly by his students. He is an articulate and knowledgeable person. He covers the material taught in class ‘very thoroughly’ and is organized and well prepared. Unfortunately, some feel his monotonic speaking makes the class drag on and on.”
- “The text for the course provides the participants with a good background. It is well-written, but long. Its relevance to the course is questioned by its readers.”
- “A few students feel that [the papers] are insightful and good, while others think they are vague and irrelevant to the material.”
- “As for the exams, they are tedious because they require memorization of 120 slides shown in class. Since only 16 appear on the test, the students have difficulty studying for the exams.”
- “Some suggestions include giving shorter lectures...requiring less memorization of slides for tests, and providing students with copies of lecture notes.”
- “Overall the students feel that the course is interesting and enjoyable.”

**Spring 1993 (58% Response) (Average to above average statistical marks)**
- Professor Friedman is “a very eloquent speaker who knows his stuff.” “On the negative site, several students point out the monotonous quality of his lectures, describing them as ‘boring or dry’ at times often lacking purpose.”
- “[Students] complain that the papers have nothing to do with the exams and lectures although they teach the ‘analytic skills needed for exams, which is good.’”
- “A number of students complain about the number of slides they have to memorize for the exams, while finding the exams ‘not too difficult,’ ‘good,’ and ‘comprehensive.’ Indeed, one student calls for more exams.”
- “Boring.”
"Don’t take it unless you’re really into architecture."

"I learned the tools to formulate my own interpretations of architecture."

"Although it’s a HASS-D, it pressures you into having a good working knowledge of the field."

**Spring 1994** (56% Response) (Average to above average statistical marks)

- "4.605 is a ‘good introductory [architectural history] course which stresses continuity and historical relationships’...The class integrates lectures, recitation, and papers which often require students to visit sites in Boston and other nearby areas."
- "[Professor Friedman] is always prepared, willing to listen, and ready to answer questions...The lectures are well presented with slides. The professor explains the details of the slides well...However, the combination of the dark room and what some consider a soft, monotone voice often lull many members of the class to sleep."
- "At times the lectures seemed to lose their aim and the pint Professor Friedman tried to get across was lost."
- "Opinions are split as to whether the test is relevant to other material presented in class."
- The papers “are definitely wonderful ways to ‘open’ our eyes and get us prepared for further study in architectural history...Their relevance became apparent with time."
- With regards to the papers, comments included that there was good feedback, but that grammatical aspects should not be emphasized so much in the grading.
- "Exams are somewhat relevant to lecture and the text. One student suggests several smaller quizzes rather than 120+ slides for one exam."
- "Several students agree that the class needs test reviews. Some ‘pull it all together’ sessions would be very helpful. Centuries pass without recognition or thought."
- "Overall students seem to enjoy the class, but they also suggest many changes. One person suggests studying one historical building rather than hundreds of them. Another thinks that there is enough material such that the class can be broken into two semesters – modern and non-western architecture."
- "[Friedman] is cool. He should stop lecturing about history and just talk to us about it."
- "The class is an interesting collection of slides and museum stories tied together academically with pointless papers and futile recitations."
- All lecture information is straight out of the book so there is no reason to go to class!"
- "We should be comparing historically significant buildings in our papers, not poems and shopping malls and the infinite corridor."

**Spring 1996** (40% Response) (Average to above average statistical marks)

- Some responded that Professor Friedman is a good speaker and knowledgeable, however others feel that he is monotonous and that there is a lack of class involvement.
- "[There] are no exam reviews, but review slides are available at the library."
- "Other than an ability to memorize, though, most students believe no background is required to do well."
- "Overall, most of those polled like the class. However, three participants would like to see some changes in the recitations such as adding more activities to make it more useful. One individual would like more slides of individual buildings, and another suggests spending some time on how to analyze architecture for the essays."
- "David Friedman is a very sincere and helpful lecturer."
- "It’s a fun class and not too hard. I definitely like it and think it is fun for anyone to take."
- "Interesting material, but too broad and too fast."