ADVISING SYLLABUS

As your academic adviser I will be one of your initial academic partners and collaborators at the UW. Over the next several years we will have opportunities to work together to examine and redefine both your larger intellectual experience and your specific trajectory through the University. The first step is to establish a good working relationship with clear goals, expectations and methods. This syllabus describes what those are and how to go about them. —Kurt Xyst

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Academic Advising & UAA

“The [academic] adviser does the same for the student’s entire curriculum that the...teacher does for one course....Learning transpires when a student makes sense of his or her overall curriculum just as it does when a person understands an individual course, and the former is every bit as important as the latter. In fact, learning in each individual course is enhanced by learning the curriculum, and thus may continue long after the course has been completed.”
—Marc Lowenstein, If Advising is Teaching, What Do Advisers Teach?

“Academic advising is the only structured activity on the campus in which all students have the opportunity for on-going, one-to-one interaction with a concerned representative of the institution.” —Wes Habley, Key Concepts in Academic Advising

“[Academic] advising may be the single most underestimated characteristic of a successful college experience.” —Richard Light, Making the Most of College

These three quotes make the same basic point: the process of academic advising is central to the process of higher education. No academic advising, no higher learning. Although academic advising has been around since the first not-yet-American college was founded in 1636 (Harvard), the shape and rhythm of academic advising looks different in different places.

Undergraduate Academic Affairs is home for the kind of big-picture, broad-based higher learning called academic advising at UW. In the next section you'll find details about what that learning looks like but first, four important principles to understand.

I. As strange as it may sound, doubt, skepticism, & worry about your learning are to be embraced and understood as intellectual virtues, not avoided. Therefore, my job is not to tell you what to do or what classes to take or what to major in. I am available to you to explore your ideas and questions about what you should learn and to provide insight and suggestions about things you have not thought about. That goes for my colleagues as well (see below). Given the complexity of the UW academic environment, it is in your best interest to take advantage of these opportunities frequently. No one will tell you exactly what to study — and that’s a good thing.

II. Choosing a UW major only exists as one end of a chain of doing-and-undergoing at UW that came before. It is literally unknowable from outside that process. In other words, when it comes to making decisions about a major or anything else at UW: slow down.

III. Because learning, and thinking, and research occurs in time, the way those things are done is extremely important. Overall, process is far more important at UW than product. The way you go about dealing with a problem set, or a policy analysis, or a strange text is more meaningful to your faculty than simply arriving at “the answer.” The way you operate in class, interact with your instructors, or choose your major is more meaningful than merely producing an outcome.

IV. I am your “general” (i.e. big picture) academic adviser, but you will have others. Once you declare a major you'll have access to an academic adviser in that specific department to work with you on that department's curriculum and process. You can also think of the instructors in each of your courses as advisers of the material in that course. They are not merely “teaching” the class, they are offering suggestions and feedback about how you should approach the ideas and issues that make up the course from the perspective of their discipline. Thus, you can think of yourself as surrounded by academic advisers each handling a different dimension of your academic life at UW. There will be times when we need to refer you to a different “dimension” because you seem to be working on something that is outside of our specific scope.
UAA Student Learning Outcomes

The intended result for students of any academic endeavor at UW is described through a set of “learning outcomes.” The learning outcomes for my work with you are listed below. There are five of these outcomes spread out over two years. After those two years you should be in a position to correctly declare a major at which point I will hand you off to the academic adviser in the department of the major you’ve chosen.

- **Understand the purpose of academic advising.** Academic advising focuses on your education at UW. This syllabus outlines the basic principles of that focus and the UAAA website facilitates appointment scheduling and answers a number of common questions about navigating the larger UW academic landscape. By the end of the first year you should be able to find your way around the academic advising system.

- **Practice effective course registration.** Successfully executing a plan to take a particular set of courses creates the conditions for making progress at UW. That said, registration at UW is a dynamic process, effected by multiple forces and different conditions every quarter. Figuring out how to deal with these different situations takes time and an awareness of various options and available tools.

- **Create a strategic course of study.** Designing, redesigning, updating, and maintaining an academic scheme that keeps you growing and on pace to graduate is a major intellectual project for every student at UW. A strategic course of study is a living document that responds to your new insights, setbacks, and changing conditions. It is not a set-it-and-forget-it instrument but rather a calibrated collection of hypotheses and inferences to be tested and adjusted every quarter. A strategic course of study incorporates your interests, priorities, judgment — and expresses your academic freedom. Initial creation of a strategic course of study can take place anytime but winter quarter of your first year tends to be a particularly fruitful time to get started.

- **Understand the significance of the Areas of Knowledge.** The Areas (or AoK) make up perhaps the most consequential part of your undergraduate education. This is the newest and most controversial part of your UW degree. While the major gets most of the attention these days, it is mental and ethical workout through the Areas that creates the intellectual depth and moral strength UW graduates are known for. Work in the Areas start right away and by the middle of year two you should be able to discuss all your Area work both comparatively (compare and contrast across Areas) and categorically (fundamental differences between the different Areas).

- **Make an informed choice of major.** This is the capstone project of the first two years of your UW education. Correctly choosing a major demonstrates substantial growth, judgment, and critical thinking across multiple quarters of study at the University.
Expectations

My Expectations Of You

• Examine and attempt to clarify your interests, values and abilities as you define your educational goals and develop your educational plan.

• Be willing to share what you discover. This does not mean all of your questions or ideas must be perfectly formulated.

• Develop an educational plan, including long-term and short-term goals, that takes into account your interests, values and abilities while ensuring timely academic progress toward your UW degree.

• Take primary and increasing responsibility for your academic freedom. Your higher education often exists in researching, weighing, and choosing between many different possibilities. The consequences of the decisions you make change the landscape of your education, in good ways and in challenging ways. As the student, you are the one who must respond to those new conditions.

What You Can Expect From Me

• I will be reasonably and predictably accessible to you via multiple channels of communication and interaction.

• I will create a reflective, supportive, and safe environment for you to communicate, think aloud, and explore academic ideas.

• I will focus my questioning and inquiry on refining and improving your learning both about yourself and your engagement at the UW, while respecting who you are and where you come from.

• I will support the final decisions you make about your higher education even if those decisions are at odds with my professional opinion or judgment. Academic freedom does not mean I have to agree with you in order to support you as a UW student.

• I will advocate for your best interests within the structure of the UW.

• I will stay current with UW degree requirements, academic programs and policies, and campus resources, and make useful referrals to other departments and offices as necessary.
Advising Methods

Appointments / Half-hour one-on-one conversations

**Best for:** Substantial and significant thoughts, questions and reflections on your academic experiences.

**How to make an appointment:** In general, I am available to meet in person with you Monday through Friday from 9 a.m.–4:30 p.m. at my office in 141 Mary Gates Hall. You can make an appointment through my [online appointment scheduler](#), or by calling (206) 543-2550, or visiting our front desk staff. If my calendar is full, check the next day, as appointment slots are continually opened up within a two-week horizon. Because appointments are time-intensive, if you cannot keep a scheduled appointment with me, make sure to cancel and free that time for another student. During Period I registration my calendar fills quickly. It is important that you plan ahead to ensure appointment availability.

**What to prepare:** Make sure you’ve read this syllabus and have a working grasp of the fundamental principles laid out within. I will assume you are up-to-date with the basic academic tasks laid out in the calendar for the relevant quarter. If you aren't, get there before our meeting because in doing so you may come across a resolution to your question. Write down your ideas, questions, thoughts — whatever you want to talk about — and bring those with you (i.e. don't wing it.) If you’re going to take a firm stand about some aspect of your education at UW (e.g. a class you believe you have to take or a major you think is critical for you), that's great — but be ready to defend your position.

Quick Questions (QQ) / 5–10 minute drop-in conversations with me, another adviser, or a peer adviser

**Best for:** Those few well-defined, technical, less complex questions pertaining to an immediate or time-sensitive matter (i.e. something that can't wait 48 hours.) Not a substitute for a full appointment, or even for a well-written email. You can find my current QQ times here: [https://sites.google.com/a/uw.edu/bildung](https://sites.google.com/a/uw.edu/bildung).

**What to prepare:** Visit our website and/or the UW website first. The answer might be there. If not, write your question down and come to MGH 141. Check in at the front desk. If it is during my QQ times and you want to talk with me specifically (always preferred) let the desk staff know that, too. Depending on how much is going on when you come in you may need to wait between 15–45 minutes to be seen.

Email / Formal, written, asynchronous communication

**Best for:** Moderately-complex questions or longer-form reflections on your educational life at UW. Email allows for deliberation and careful crafting of ideas and thoughts. Some students find this a lower-pressure way to interact with me than in-person meetings. That's cool. But not everything lends itself to email and if the question turns out to be more complex than it first seems, I will likely ask you to schedule an appointment.

**What to prepare:** A well-structured piece of writing, including appropriate salutation and proper grammar, sent from your UW email account. Allow at least 48 hours for a response. Response times may be longer during busier times of the year, such as during the first few weeks of courses, and Period I registration.

Office emails / Suggestions for tackling the primary academic tasks of the current or upcoming quarter

**Best for:** Providing more depth and explanation at a time when it can be most useful; receiving information relevant to your entire cohort.

**What to prepare:** Check your UW email daily, and set junk filters on your email client appropriately so you don't miss something important.
Academic Advising Calendar

What follows is a basic roadmap for progressing through the first academic year at UW. This will keep you on-track with core activities and introduce you to key academic practices for succeeding at UW. It will also keep you from being blindsided by registration for winter. You can complete each of the tasks except for the last one before the date suggested, but I will assume that you are at least current with the timing below.

**Fall: Pay attention.**

<table>
<thead>
<tr>
<th>By When</th>
<th>Task</th>
<th>Date Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Read all syllabi carefully</td>
<td></td>
</tr>
<tr>
<td>Week 1</td>
<td>Start your academic field journal</td>
<td></td>
</tr>
<tr>
<td>Week 1 (end of)</td>
<td>Finalize course schedule for the quarter</td>
<td></td>
</tr>
<tr>
<td>Week 3</td>
<td>Read &quot;Manage Your Time in Five Minutes a Day&quot; on page 12 &amp; &quot;Making Things Hard on Yourself, But in a Good Way: Creating Desirable Difficulties to Enhance Learning&quot; on page 21</td>
<td></td>
</tr>
<tr>
<td>Week 3</td>
<td>Attend office hours for each of your classes</td>
<td></td>
</tr>
<tr>
<td>Week 4*</td>
<td>Attend a study or writing center (e.g. CLUE)</td>
<td></td>
</tr>
<tr>
<td>Week 6*</td>
<td>Review academic field journal, establish connections</td>
<td></td>
</tr>
<tr>
<td>Week 6</td>
<td>Begin design work for winter, explore DARS</td>
<td></td>
</tr>
<tr>
<td>Week 7-8</td>
<td>Register for winter quarter</td>
<td></td>
</tr>
</tbody>
</table>

* Denotes a good time for us to talk & when appointments easier to get

**Field Journal:** I suggest that the central innovation of your academic life in fall quarter, other than getting used to being on campus and getting into the rhythm of your fall classes, should be the establishment of an academic field journal.

An academic field journal is a notebook where you write down questions, ideas, thoughts, impressions, & observations that arise for you as you are working through the material of your classes and moving through your life on campus. The idea is to quickly capture those things that seem curious or somehow meaningful at the time they happen for review later, regardless of where they came from or what they're “about.” These questions and flashes of insight can be wonderfully useful but have a way of disappearing quickly in the roar and rush of the day.

For instance, in reviewing your lecture notes from earlier in the day you may be struck in a certain way by a particular similarity between resource allocation from your economics class and gas law from your chemistry class. You open your journal and write down “gas + scarcity: closed systems, what was Marx thinking?” Entries can be full sentences, single words, or even quick doodles & diagrams — anything that you'll be able to make sense of later. Your field journal is for your eyes only and doesn't have to be shared with me or anyone else unless you want to. (You'd have to explain the gas + econ + Marx thing.) Try to add a couple of notes in your field journal every day.
Academic Advising Calendar (continued)

Winter: Develop your research consciousness.

<table>
<thead>
<tr>
<th>By When</th>
<th>Task</th>
<th>Date Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Finalize classes for winter quarter</td>
<td></td>
</tr>
<tr>
<td>Week 1</td>
<td>Continue academic field journal</td>
<td></td>
</tr>
<tr>
<td>Week 3</td>
<td>Read “Role and Mission of the University” on page 8</td>
<td></td>
</tr>
<tr>
<td>Week 3</td>
<td>Read What is the “What is the Significance of Study at the Research University?” on page 28</td>
<td></td>
</tr>
<tr>
<td>Week 4*</td>
<td>Reflect in your academic field journal on your VLPA, I&amp;S, NW work as “consciousness raising”</td>
<td></td>
</tr>
<tr>
<td>Week 6*</td>
<td>Review academic field journal, establish connections</td>
<td></td>
</tr>
<tr>
<td>Week 6</td>
<td>Begin design work for spring</td>
<td></td>
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<tr>
<td>Week 7-8</td>
<td>Register for spring quarter</td>
<td></td>
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</tbody>
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* Denotes a good time for us to talk & when appointments easier to get

Confusion & Knowledge. The core project I suggest for winter is extended reflection on what it might mean to really break out of your old ways of thinking. New ideas and new knowledge lie in profusion across this campus. You slowly becoming more aware of them of some of them. With that increased consciousness comes increased confusion. Believe it or not, that’s a good sign. Confusion is the starting point for all systematic thinking and for the creation of knowledge. Spend some time dwelling on the ideas of possibility, confusion, and knowledge. The Thinking-Experience Cycle and Explainer gives a concrete picture of how these concepts relate to each other.

Spring: Hypothesize.

<table>
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<tr>
<th>By When</th>
<th>Task</th>
<th>Date Completed</th>
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</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Finalize classes for spring quarter</td>
<td></td>
</tr>
<tr>
<td>Week 1</td>
<td>Continue academic field journal</td>
<td></td>
</tr>
<tr>
<td>Week 4*</td>
<td>Establish Year Two Hypothesis</td>
<td></td>
</tr>
<tr>
<td>Week 6*</td>
<td>Review academic field journal, establish connections</td>
<td></td>
</tr>
<tr>
<td>Week 7</td>
<td>Lay out coursework for next year/design test</td>
<td></td>
</tr>
<tr>
<td>Weeks 7-8</td>
<td>Register for fall quarter</td>
<td></td>
</tr>
</tbody>
</table>

* Denotes a good time for us to talk & when appointments easier to get

Moving forward. The overall academic project I suggest for spring the construction of a concrete vision for year two. Knowing exactly what you want to do next year is not the standard for this project, so don't worry if you don't have it all figured out. Instead, generate an hypothesis about what you think you should study at UW next year based on your experiences fall, winter, and this quarter. From that hypothesis a set of tests or experiments (classes) can be constructed to confirm or disconfirm the hypothesis. In developing your hypothesis ask yourself these two questions: What do I expect will be fruitful for me next year? What do I expect will be interesting? Borrowed from Thomas Kuhn's philosophy of science, “fruitful” means it generates new ideas and new questions and new things for you to work on. In other words, it is sufficiently rich and complex (as opposed to boring, overly-familiar, or so difficult that it feels like a dead-end.) “Interesting” means that it grabs you, that it demands some of your attention, that you can't ignore it. Note, that many things that interest us also surprise us. We don't always intend to be interested in something, but it grabs us anyway. Interest is something that happens to us rather than something we do.
Role and Mission of the University

Founded 4 November 1861, the University of Washington is one of the oldest state-supported institutions of higher education on the Pacific coast. The University is comprised of three campuses: the Seattle campus is made up of seventeen schools and colleges whose faculty offer educational opportunities to students ranging from first-year undergraduates through doctoral-level candidates; the Bothell and Tacoma campuses, each developing a distinctive identity and undergoing rapid growth, offer diverse programs to upper-division undergraduates and to graduate students.

The primary mission of the University of Washington is the preservation, advancement, and dissemination of knowledge. The University preserves knowledge through its libraries and collections, its courses, and the scholarship of its faculty. It advances new knowledge through many forms of research, inquiry and discussion; and disseminates it through the classroom and the laboratory, scholarly exchanges, creative practice, international education, and public service. As one of the nation’s outstanding teaching and research institutions, the University is committed to maintaining an environment for objectivity and imaginative inquiry and for the original scholarship and research that ensure the production of new knowledge in the free exchange of facts, theories, and ideas.

To promote their capacity to make humane and informed decisions, the University fosters an environment in which its students can develop mature and independent judgment and an appreciation of the range and diversity of human achievement. The University cultivates in its students both critical thinking and the effective articulation of that thinking.

As an integral part of a large and diverse community, the University seeks broad representation of and encourages sustained participation in that community by its students, its faculty, and its staff. It serves both non-traditional and traditional students. Through its three-campus system and through educational outreach, evening degree, and distance learning, it extends educational opportunities to many who would not otherwise have access to them.

The academic core of the University of Washington is its College of Arts and Sciences; the teaching and research of the University’s many professional schools provide essential complements to these programs in the arts, humanities, social sciences, and natural and mathematical sciences. Programs in law, medicine, forest resources, oceanography and fisheries, library science, and aeronautics are offered exclusively (in accord with state law) by the University of Washington. In addition, the University of Washington has assumed primary responsibility for the health science fields of dentistry and public health, and offers education and training in medicine for a multi-state region of the Pacific Northwest and Alaska. The schools and colleges of architecture and urban planning, business administration, education, engineering, nursing, pharmacy, public affairs, and social work have a long tradition of educating students for service to the region and the nation. These schools and colleges make indispensable contributions to the state and, with the rest of the University, share a long tradition of educating undergraduate and graduate students toward achieving an excellence that well serves the state, the region, and the nation.
Phases

**Confusion** — “Mingling together” of ideas, actions, and experiences that don’t seem to go together & often accompanied by emotional discomfort. And yet: headwaters of all intellectual work and genuine questioning. Confusion is a common state for most UW academics and students.

**Guessing** — Quasi-rational, idiosyncratic attempt to explain confusion.

**Hypothesizing** — Creative proposal of a possible explanation for the observations made about confusion.

**Testing** — Designed action based on if-then deduction from an hypothesis. The outcome of testing is taken to confirm or disconfirm the hypothesis and not to generate truth or certainty.

**Elaborating** — Iterative improvement on hypothesis after looking at the outcome of testing reflected in the glass of various alternative views, assumptions, beliefs, and explanations.

**Resolving** — Re/solving. Applying judgment to replace a confused state of affairs with one that is clear and continuous with prior understanding. Drawing conclusions.

**Executing** — Deliberate, planned, or habitual efforts to make things happen. Knowledge seems to emerge when one evaluates that the changes intended are indeed the changes that actually come about. Confusion emerges when efforts produce unintended or unexpected outcomes.

**Sub-system**

**Trial and Error** — Process of confusion-guessing-executing where by an attempt is made to change one situation into another. Trial and error is not always bad, but it is always uncontrolled. Any specific outcome is unintended and therefore cannot be called knowledge, nor can it expected to come about again in the future.

**Threshold**

**Observation** — Resisting the urge to act immediately after guessing and instead producing a description of what is going on by gathering/creating information, evidence. Crossing over to observation makes reasoning and intentional action possible.
UW Affinity Groups

Values, meanings, and expressions of being human

*Meanings of Life*
- Art History
- Cinema Studies
- Classics
- Comp. History of Ideas
- Comp. Literature
- English
- History

*Ways of Living*
- American Ethnic Studies
- American Indian Studies
- Asian Studies
- Canadian Studies
- Comparative Religion
- European Studies
- Gender, Women, Sexuality Studies
- International Studies
- Jewish Studies

*Languages & Communication*
- Asian Languages & Literature
- Communication
- Germanics
- Near Eastern Languages & Civilization
- Romance Languages & Literature
- Scandinavian Studies
- Slavic Languages & Literature

*Good Life*
- Architecture
- Economics
- Gender, Women, Sexuality Studies
- History
- Philosophy

*Craft*
- Architectural Design
- Dance
- Drama
- English
- Interdisciplinary Visual Arts
- Landscape Architecture
- Music
- Painting & Drawing
- Photomedia
- Visual Communication Design

Observation and theoretical investigation of human action

*Causes of Human Behavior*
- Anthropology
- Early Child./Fam. Studies
- Economics
- Political Science
- Psychology
- Social Welfare

*Environment & Society*
- Anthropology
- Environmental Studies
- Geography
- Social Welfare
- Speech/Hearing Sciences
- Public Health
- Community, Environment, & Planning
- Education, Communities, & Organizations

*Cultural Comparison & Analysis*
- American Ethnic Studies
- American Indian Studies
- Anthropology
- Jackson School
- Law, Society, & Justice
- Sociology

*Dynamics of Social Interaction*
- Communication
- Geography
- Informatics
- Linguistics
- Sociology
- Business Admin.
- Construction Mgmt.

*Governance & Power*
- American Ethnic Studies
- American Indian Studies
- Gender, Women, Sexuality Studies
- Jackson School (General)
- Law, Society, & Justice
- Political Science
- Sociology
Empirical and theoretical investigation of non-human phenomena

**Numbers**
- Applied & Comp. Mathematical Sciences
- Mathematics
- Statistics

**Matter & Movement**
- Astronomy
- Biochemistry
- Chemistry
- Physics

**Life**
- Aquatic & Fishery Sciences
- Biochemistry
- Bioengineering
- Biology
- Environmental Health
- Microbiology
- Neurobiology

**Spaces**
- Atmospheric Sciences
- Earth and Space Sciences
- Oceanography

Study of systems and tools

**Health**
- Bioengineering
- Chemical Engineering
- Material Science Engineering
- Medical Technology
- Nursing
- Pharmacy

**Computing-Related**
- Applied & Comp. Math Sciences
- Computer Science/Engineering
- Electrical Engineering
- Human Centered Design & Eng.
- Informatics

**Infrastructure & Energy**
- Chemical Engineering
- Civil and Environmental Engineering
- Construction Mgmt.
- Electrical Engineering
- Industrial & Systems Engineering
- Material Science & Engineering
- Mechanical Engineering

**Design & Build**
- Aeronautics & Astronautics
- Architectural Design
- Interaction Design
- Industrial Design
- Landscape Architecture
- Material Science Engineering
- Human Centered Design & Engineering
Manage Your Time in Five Minutes a Day


Real straight-A students, like most reasonable students, hate time management. After all, college is supposed to be about intellectual curiosity, making new friends, and becoming obsessed with needlessly complicated drinking games. An overwhelming interest in time management is best left to harried business executives (or, perhaps, premeds). At the same time, however, you can't abandon all attempts to keep tabs on your schedule. Ignore this skill, and you doom yourself to four long years of playing catch-up with your work. As Doris, a straight-A student from Harvard, states: "Time management is critical — it’s a skill that you absolutely must develop over the course of your time at college."

Most students, however, misunderstand the purpose of time management — they believe it's used only to cram as much work as possible into the day. But this is not the main motivation behind controlling your schedule. As it turns out, a little planning goes a long way toward reducing your daily stress levels. Having deadlines and obligations floating around in your mind is exhausting — it makes it impossible to completely relax, and, over time, can lead you down the path toward a breakdown. However, once you figure out what work needs to be done and when, it's like a weight being lifted from your shoulders. The uncertainty vanishes: When you work, you can fully concentrate on the assignment in front of you, and when you relax, you can do so without any anxiety. "I don't believe in giving up anything," says Jenna, a straight-A student from Princeton. "Not my social life, not my extracurricular activities, not my academic success."

Basic control over your schedule breeds balance. This is why time management, as Doris stated earlier, is the key to getting the most out of all aspects of your college experience.

The goal of Step #1 is to present a time-management system that helps you achieve this stress-free balance without requiring you to sacrifice the spontaneity and excitement of college. Specifically, we present a system tailored to the typical undergraduate lifestyle that meets the following criteria:

1. Requires no more than five to ten minutes of effort in a single twenty-four-hour period
2. Doesn't force an unchangeable minute-by-minute schedule on your day.
3. Helps you remember, plan, and complete important tasks before the very last moment.
4. Can be quickly restarted after periods of neglect.

We will cover the details of this system in a few simple steps and then conclude with a detailed case study so you can see how it works in a realistic setting.

**What You Need**

This system requires two pieces of equipment.

1. **A calendar**: It doesn't matter what type of calendar, and it's not something that you have to carry around with you. It can be Microsoft Outlook or iCal on your computer, a cheap day planner, or one of those advertisement-laden freebies they hand out at
orientation. It just has to be something that you can reference every morning that has enough space to record at least a dozen items for each day.

2. A list: Some piece of writing material that you can update throughout the day. This you do have to carry around with you, so make it something simple, like a sheet of paper ripped out of a notebook each morning.

The Basic Idea

Record all of your to-dos and deadlines on your calendar. This becomes your master schedule, the one place that stores everything you need to do. The key to our system, however, is that you need to deal with your calendar only once every twenty-four hours. Each morning, you look at it to figure out what you should try to finish that day. Then, throughout the day, whenever you encounter a new to-do or deadline, simply jot it down on your list. The next morning you can transfer this new stuff from your list onto your calendar, where it’s safe. And we’re back where we started.

That’s it. Pretty simple, right? The whole system can be summarized in three easy steps: (1) Jot down new tasks and assignments on your list during the day; (2) next morning, transfer these new items from your list onto your calendar; and (3) then take a couple of minutes to plan your day.

Now we’ll examine these steps in a little more detail. In particular, we need some strategies for how to plan your day each morning using your calendar and what to do when unexpected events interfere and turn that plan upside down (trust me, this will happen more often than not).

Update Your Calendar Each Morning

This is where the magic happens. Every morning, spend a few minutes to update your calendar and figure out what you should try to accomplish. This is the only serious time-management thinking you have to do for the whole day, so the demand is pretty reasonable. This updating process should proceed as follows:

Find your list from the day before. It will probably look something like the example described in Figure 1. Don’t worry too much about how this list is formatted; we will discuss that shortly. For now, focus on the “things to remember” column, which contains the new to-dos and deadlines that were jotted down throughout the day.

Figure 1. Sample List

<table>
<thead>
<tr>
<th>Tuesday—1/24/06</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TODAY’S SCHEDULE</strong></td>
<td><strong>THINGS TO REMEMBER</strong></td>
</tr>
<tr>
<td>10:00 to 12:00 Econ class</td>
<td>Econ study group, Thur. at 9 P.M.</td>
</tr>
<tr>
<td>12:00 to 1:00 Lunch with Rob</td>
<td>French quiz moved to Friday</td>
</tr>
<tr>
<td>1:00 to 1:45 Government reading</td>
<td>Laundry</td>
</tr>
<tr>
<td>2:00 to 4:00 Government class</td>
<td>Start researching summer internship opportunities.</td>
</tr>
<tr>
<td>4:00 to 5:30 Finish government reading</td>
<td></td>
</tr>
<tr>
<td>5:30 to 6:30 Start French essay</td>
<td></td>
</tr>
</tbody>
</table>

Transfer these new items onto your calendar. Write the deadlines on the appropriate dates, and write the to-dos on the days when you plan to complete them. Following the example of
your sample list you would first jot down the econ study group time under Thursday's date and the French quiz under Friday's date. You would then choose a day to do laundry and jot down a reminder under that date, and choose a day to start internship research and jot down a reminder under this date. You can move these items around on your calendar as many times as you want, so don't worry too much about which date you initially choose for a new to-do. However, try to use common sense. For example, if Wednesday afternoon and evening are packed with meetings and work, this might not be the best day to schedule doing your laundry. Similarly, if you have a big test Monday morning, don't schedule a lot of annoying errands for Sunday; you'll need your concentration for studying. If something is not especially time sensitive, such as the internship research example from above, don't be afraid to put it on a day far in the future, at a point when you know you will be less busy — such as right after midterm at the beginning of a new semester.

Next, move the to-dos that you planned for yesterday, but didn't complete, to new days on your calendar. In our sample list from Figure 1, the Today's Schedule column describes to-dos planned from the day before. As you can see, in this example, all the to-dos were completed except the "Start French essay" task, so you would need to move this task to a new date.

At this point, your calendar once again holds everything that you need to get done. Now it's time to figure out your plan for the current day. Go ahead and trash yesterday's list — it's served its purpose — and grab a fresh sheet of paper to use as today's list. Divide it into two columns, as shown in Figure 1, and label them Today's Schedule and Things to Remember, respectively.

Next, look at the calendar entry for the current day. It will probably contain a handful of appointments and to-dos. Your goal is to figure out how much of this work you can realistically accomplish. You might be tempted to simply copy all of these tasks into your Today's Schedule column and then treat it as a simple to-do list for the day. Don't do this! If you want to avoid getting overwhelmed by your work, you need to be smarter about your time.

Here is what you should do instead: Try to label each of your to-dos for the day with a specific time period during which you are going to complete it. Be honest. Don't record that you are going to study for three hours starting at three if you know that you have a meeting at five. And be reasonable about how long things really take — don't plan to read two hundred pages in one hour. For simplicity, group many little tasks (errands that take less than ten minutes) into one big block (for example: "10:00 to 10:45 — mail letter, return library book, buy new deodorant, fill out transcript request form at registrar"). Leave plenty of time for breaks. Give yourself an hour for meals, not twenty minutes. And, if possible, end your day at an appropriate hour; don't try to fit in work right up until sleep time because you need to be able to unwind and relax. In general — though it may seem counterintuitive — be pessimistic. The truth is: Things will come up. Don't assume that every hour that looks free in the morning will stay free throughout the day.

Remember, the goal here is not to squeeze everything into one day at all costs, but rather to find out how many of the tasks listed for the day you actually have time to accomplish. If you can't fit all the to-dos into your schedule for the day, no problem! Simply move the remaining items onto the calendar entries for future dates. You can deal with them later.

Your final step is to record the tasks you will have time for into the Today's Schedule column of your list. As shown in Figure 1, label each task with its time. That's it. You can now reference your list throughout the day to remind yourself of what you should be doing and when.

But here's the important point: The specific times on your schedule aren't set in stone — they're more of a suggestion. As we will discuss shortly, you will be free to move tasks around throughout the day, depending on your energy level and unexpected events that may arise. The main reason you break down your to-dos into time slots is to help you avoid the common student mistake of overestimating your free time. Many well-intentioned students use a simple
to-do list to keep track of their daily obligations. But without time labeling, they have no idea how much they can actually accomplish, leading to an unrealistic plan. A twelve-hour day seems like a large amount of time, but when you account for meals and classes and meetings and breaks and socializing, your schedule suddenly becomes a lot tighter. The equation is simple: If you overestimate your free time, then you are likely to put off work until it’s too late. And this leads to all-nighters, panic attacks, and shoddy performance. A realistic sense of time is arguably one of the most important factors in succeeding as a student. After a week or two of time labeling your to-dos, you will be well along your way toward developing this crucial trait.

*Use the List During the Day*

As you move through your day, use the rough schedule recorded under the Today’s Schedule column to remind yourself what you should be doing. Keep in mind that the student lifestyle is, generally, quite unpredictable. Things will always come up at the last minute. Work will take longer than expected, your roommate will point you toward some absurd Web site that immediately demands an afternoon of your scrutiny — you know how it goes. So adjust your time labels as many times as needed. But don't procrastinate excessively! The list you constructed in the morning should contain a reasonable amount of work, so if your schedule doesn’t become too unexpectedly crazy, you should be able to accomplish most, if not all, of these tasks. In general, if you’re completing most of what’s on your list at least five days out of seven, then you’re as productive as any student realistically needs to be.

Remember, your list also serves another important purpose. During the day you will probably encounter various new to-dos and deadlines that need to be scheduled. For example, a professor might announce the date of an upcoming exam, or a friend might give you the date and time for an upcoming study group. The key is to get these obligations out of your head as soon as possible so your mind is not unnecessarily cluttered. Jot down a quick reminder on your list, in the Things to Remember column, as soon as they occur. This takes only a few seconds, and then you can forget about them. The actual scheduling of these tasks will take place the next morning; all you have to do for now is scribble a few words on a piece of scrap paper.

Remember, to-dos and deadlines that exist only in your mind drain your energy, distract your attention, create stress, and are more likely to be forgotten. When you’re working, you should be able to concentrate on working, and when you’re relaxing, you should be able to enjoy relaxing. But you can’t devote 100 percent of your energy to any activity when you have important reminders bouncing around in your head.

Few students have the energy to schedule every new piece of information that comes along during the day. Think about this for a moment: If it’s the middle of the afternoon, and you are hungry, and everyone is just getting up to leave at the end of a long class, when suddenly the professor yells out a notice that a paper topic is due the following week...you’re probably not going to have the energy to stop packing up, take out a calendar, think about what steps are involved in coming up with a paper topic, and then schedule each step on the appropriate days. It would be nice if you did, because then you could purge the deadline from your mind and be confident that it’s safely recorded in your calendar — but this is unrealistic. And it violates our original criterion that any time management system should require only a few minutes each day.

That’s the power of the “things to remember” column of your list. You can’t expect yourself to be able to think seriously about time management at all points during your busy day. But the act of pulling out a piece of scrap paper from your pocket and quickly jotting down “anthro paper topic” requires minimal energy, no thinking, and barely any time. You don’t have to consider when to begin working on the paper topic, what steps are involved, or how many days it will require. You simply scribble down three words.
The key is that the list is a trusted piece of storage. You are confident that tomorrow morning, when you're doing your only time management thinking for the day, you will see that reminder and record the appropriate steps in your calendar. Because of your list, the deadline will not be lost. It will be scheduled.

**Restarting After a Period of Neglect**

To date, I have yet to have successfully followed any time management system without interruption for longer than two months. I try, but inevitably I hit a rough patch. Typically, this happens during the few days following a really busy period — I'm so exhausted from the intensity of the preceding work that I find myself unable to even mention the word "to-do" without breaking into a cold sweat. This happens to everyone, and you can expect that periodically it will happen to you too. Don't fear these occasions, and don't let them make you feel like a failure. They're normal.

The key point is that these lapses are temporary. After a couple days of swearing off my calendar, I always find myself growing uncomfortable with the increasing number of obligations that are free floating in my mind. Before I know it, I'm back into the swing of using the system again, and no worse for wear. The same will be true for you. Once you have learned the power of feeling organized, you will have a hard time going long periods without it.

Fortunately, the system described here is adaptable to these periods of neglect. If you skip a few days, all you need to do upon restarting is to dump all the to-dos and deadlines free floating in your mind onto a sheet of paper and then push these back onto your calendar for future dates.

**Case Study: A Monday with Stephen**

Even the simplest systems can come across as confusing when first described. So let's go through a quick example that will show how to put this system into practice. Stephen's story is based upon the real-life college experiences of myself and the many students I interviewed. If you're already at college, what follows will seem familiar. If you haven't yet started your undergraduate career, don't panic! Yes, Stephen has a lot on his plate. Notice, however, how he uses our system to keep control of his many obligations. Though he can't finish everything in one day, he remains confident that everything that needs to get done will get done in time. As you read this example, imagine how Stephen's stress might increase, and his efficiency decrease, if he didn't have his list and calendar to guide his actions and capture the new to-dos and deadlines that constantly pop up.

**MONDAY MORNING**

Stephen gets up early because he has class at 9:30 A.M. — a horrible thing. He grabs his calendar from his desk and roots around in his hamper to find the sheet of notebook paper that he used as yesterday's list. He has only a couple of minutes before class, but that's okay. Our system requires very little time. Figure 2 shows what Stephen finds recorded on his calendar for today.

**Figure 2. Stephen's calendar entry for Monday**

**Monday—3/11/07**

- Finish reading for Tuesday Gov class.
- Gift for Dad's birthday
- First step of research for Gov paper—find books, Xerox relevant chapters.
- Pay cell phone bill.
- Return Mark's CD.
- First half of Econ problem set (due Wed)
- Pick topic for Anthro paper (due tomorrow).
- Read five chapters from Anthro book (need to catch up for Friday's quiz).
- Dinner with guys—7 P.M.—Molly's
Figure 3 shows what he finds scrawled on yesterday's list.

Figure 3. Stephen's list from Sunday

**Sunday—3/10/07**

<table>
<thead>
<tr>
<th>TODAY'S SCHEDULE</th>
<th>THINGS TO REMEMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00 to 3:00 — read article for Anthro.</td>
<td>Call home.</td>
</tr>
<tr>
<td>3:00 to 6:00 — write Government essay.</td>
<td>Start researching summer internships.</td>
</tr>
<tr>
<td>7:00 to 8:00 — dinner with Sarah</td>
<td>Create schedule for practicing guitar?</td>
</tr>
<tr>
<td>9:00 to 10:00 — edit Government essay.</td>
<td></td>
</tr>
<tr>
<td>10:00 to 11:00 — start reading for Tuesday's Government class</td>
<td></td>
</tr>
</tbody>
</table>

There are several things to notice here. First, Stephen has a lot of work recorded on his calendar entry for today. More than he can probably accomplish in twelve hours, so, some of these to-dos will need to be moved to other dates. Also notice Stephen's schedule from the day before (Sunday). This is typical. A fun night on Saturday inevitably leads to a late start and a large workload on Sunday. Stephen was too ambitious with his planning, and by 10:00 P.M. he was burnt out from working on his essay and never got around to starting the Government reading he had scheduled. So this task will need to be carried over to today. Finally, notice how Stephen's Things to Remember column from yesterday includes some long-term projects, such as "Create schedule for practicing guitar." This is a great use of the list! If you jot down ideas for extracurricular and personal projects as they occur to you, they will get moved onto your calendar and therefore won't be forgotten until you finally get around to doing something about them. Now let's see how Stephen gets a handle on all of this before class.

**WHAT DOES STEPHEN DO FIRST?**

Stephen's first step is to time label the tasks currently on his plate, so he can determine how much he can actually get done. Between his calendar entry for today and the leftovers from yesterday's list, Stephen has a lot of to-dos to schedule. His strategy is simple; He starts time labeling in order of importance until his schedule is full, and then moves the rest of the items to other days on the calendar. To effectively time label, however, he must first figure out how much free time he has available. Stephen quickly runs through the following in his head:

I have class from 9:30 to 10:30, and another class from 11:00 to 12:00. It's unlikely that I will get any work done between my 7:00 P.M. dinner and the Alpha Chi party that starts soon after. I should also try to squeeze in an hour or two for a pre-dinner workout (have to look good in that toga), so I should aim to be done with all of my work by 5:00.

With his free time now identified, Stephen can begin to time label his to-dos. Here is his thought process:

In between class, from 10:30 to 11:00, I can squeeze in my three small tasks — pay cell phone bill, buy a birthday gift for Dad, and return Mark's CD. After my second class, I will need to get lunch, but then I should get right to work on my Government reading because it's due tomorrow! Let's see, I have three Government articles to read, which will realistically take two hours, so I will label this task with 1:00 to 3:00. Hmmm, I am running out of time here. I need to start that Econ problem set because those are hard, and it's due Wednesday morning, so I'll label that task with 3:00 to 4:30. Okay, I am down to my final half hour. What else has to get done? My Anthro paper topic is due tomorrow, so I will have to squeeze that in at 4:30 to 5:00. And that's all I have time for.
At this point, Stephen is almost done. All that’s left is taking care of the still-unscheduled to-dos by moving them to future dates. Remember these include both the unscheduled tasks recorded for the current day and the “things to remember” items from yesterday’s list.

On yesterday’s list / have a reminder to Call home ... this week is SO busy ... okay, I’ll jot that down on the calendar entry for Friday, I’ll be more relaxed by then. I really don’t have time right now for these other two reminders—start internship research and create guitar schedule—so I’ll jot those down on the calendar entry for the first weekend after midterms are over. I should have more free time then. Okay, what’s left? The unlabeled items from today’s calendar entry. No problem. I can move the Anthro reading to tomorrow’s calendar entry, and then move the Government paper research to Wednesday—I can work on it after I hand in my Econ problem set. Done.

That’s it. Stephen has finished all of his serious time-management thinking for the day. Before leaving for class, he rips out a fresh sheet of notebook paper to use for today’s list. He divides it into two columns and jots down the tasks he scheduled for the day. Figure 4 shows what Stephen’s list looks like as he bolts out the door.

Figure 4. Stephen’s list on Monday morning

<table>
<thead>
<tr>
<th>Monday—3/11/07</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TODAY’S SCHEDULE</strong></td>
</tr>
<tr>
<td>• 9:30 to 10:30 Class</td>
</tr>
<tr>
<td>• 10:30 to 11:00 — Gift for Dad’s birthday, pay cell phone bill, return Mark’s CD.</td>
</tr>
<tr>
<td>• 11:00 to 12:00 — Class</td>
</tr>
<tr>
<td>• 12:00 to 1:00 Lunch/ Break</td>
</tr>
<tr>
<td>• 1:00 to 3:00 Do Government reading assignment.</td>
</tr>
<tr>
<td>• 3:00 to 4:30 Start work on Econ problem set.</td>
</tr>
<tr>
<td>• 4:30 to 5:00 Come up with topic for Anthro paper.</td>
</tr>
<tr>
<td>• 7:00 Dinner</td>
</tr>
</tbody>
</table>

The entire process described above would realistically take only around three to five minutes to complete. The more you use this system, the more natural it becomes. Before you know it, updating your calendar and dashing off a daily schedule will become as routine as taking a morning shower. Remember, this is the only serious time management thinking that Stephen has to do all day. Now he’s ready to face his Monday with his mind free from worry about tasks he’s forgetting or due dates that are looming. He knows he has scheduled all the tasks on his plate and that they will get done eventually. He has a flexible plan...and he can trust it. Now let’s see how Stephen holds up...

**DURING THE DAY ON MONDAY**

The day starts off fine. Stephen successfully finishes the small tasks that he scheduled for 10:30. During his second class, he remembers that he has some overdue library books that need to be returned. No problem. Stephen whips the list out of his pocket and jots down “Return books” under the “Things to Remember” column. A little later, the professor announces the date and time of the midterm — something else that needs to be scheduled. Again, no problem for Stephen. He adds “Sched. Gov midterm (4/5, 3 P.M.)” to his list, and then leaves the classroom confident that these tasks will be scheduled appropriately tomorrow morning.
After a leisurely lunch, Stephen hunkers down in the library to tackle his government reading. The articles are a little shorter than usual, so he finishes by 2:30, which is nice.

As he leaves the library, however, Stephen runs into a friend who convinces him to tag along on a WalMart run. To be honest, it didn't take much convincing. College students, for some inexplicable reason, love WalMart runs.

After this (unavoidable) detour, Stephen gets back to campus by 3:30. Now he's behind schedule. Quickly checking his e-mail, Stephen sees a message from a classmate asking if he wants to join a study group at 4:00 to work on the Econ problem set. Swiftly adapting, Stephen once again whips out his list and makes a couple of rapid changes to the Today's Schedule column. He bumps up the Anthro paper topic work to start now, and then replaces his Econ problem set work with the study group that he just found out about. One of the big advantages of this system is its flexibility. Schedules will always change, but the system makes it easy for you to regain your focus after getting sidetracked. Figure 5 shows the new state of Stephen's list.

Figure 5. Stephen's list Monday afternoon

<table>
<thead>
<tr>
<th>Monday—3/11/07</th>
<th>TODAY'S SCHEDULE</th>
<th>THINGS TO REMEMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 9:30 to 10:30 Class</td>
<td>• return books</td>
<td></td>
</tr>
<tr>
<td>• 10:30 to 11:00 Gift for Dad's birthday, pay cell phone bill, return Mark's CD.</td>
<td>• Sched. Gov midterm (4/5, 3 p.m.)</td>
<td></td>
</tr>
<tr>
<td>• 11:00 to 12:00 Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 12:00 to 1:00 Lunch/ Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 1:00 to 3:00 Do Government reading assignment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 3:30 to 4:00 Choose Anthro paper topic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 4:00 to 5:00 Work with group on Econ problem set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 7:00 Dinner</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Anthro work goes fine. Stephen finds a topic that he is happy with and then runs off to meet with his Econ group. During the meeting, the group agrees to meet again Tuesday morning to finish the problem set. Stephen quickly jots down “Econ group — 10 A.M.” under Things to Remember and then heads off to the gym. He's done with work for the day.

The Aftermath

Because he finished a lot of work during the morning and afternoon before the party, Stephen was able to really relax and have a good time that night. In addition, he successfully recorded all of the new to-dos and deadlines that cropped up during the day. Instead of bouncing around in his head and causing stress, they were safely placed in Stephen's system and will be scheduled in due time. Most important, none of this required him to explicitly think about time management beyond the five minutes he spent planning that morning and the quick rescheduling he did in the afternoon. As suggested at the beginning of this case study, imagine for a moment what Stephen's day might have been like without the simple time management system. What if, instead, he'd employed the strategy used by most students and simply tried to remember what paper topic he needed to get done? It's highly unlikely that the small tasks
would have been completed. Without a schedule, people don’t like to do menial chores unless they’re 100 percent necessary. There’s also a good chance that he would have forgotten about the Anthro paper topic altogether after the last-minute study group came up.

What about the big picture reminders from Sunday — calling home, scheduling internships, creating a guitar-practicing schedule? Those would have been pushed out of his head completely by the demands of near-future deadlines. Without a system to capture them, we can’t expect Stephen to remember long-term ideas for any extended period of time.

Most important, without the system, Stephen would have completed much less school work on Monday. The day would have focused, more or less, only on the Government reading, because that was the only big task actually due the next day. Without time labels, Stephen would have had a much hazier understanding of his free time, so he probably wouldn’t have started this reading until later in the afternoon (for the most part, students don’t like to start any work without a large block of free time ahead of them). Remember, however, that this assignment took a couple of hours to complete, so that means if Stephen had waited until the afternoon to start, he would have finished only this single task by 5:00, with the Econ problem set and Anthro paper topic likely falling by the wayside. Instead, Stephen ended up finishing six tasks by 5:00, leaving plenty of time for exercise and fun during the evening.

As you can see from the case study, this simple time management system, which requires only a few minutes of planning each day, made Stephen significantly more productive and significantly less stressed. It will do the same for you. In other words, five minutes every morning and a sheet of scrap paper in your pocket are enough to transform you from a stressed-out student struggling to get things done, into an organized, relaxed, finely tuned academic machine.

If you remember one lesson from this book, it should be the lesson of this case study: A little organization goes a hell of a long way.
The basic problem learners confront is that we can easily be misled as to whether we are learning effectively and have or have not achieved a level of learning and comprehension that will support our subsequent access to information or skills we are trying to learn. We can be misled by our subjective impressions. Rereading a chapter a second time, for example, can provide a sense of familiarity or perceptual fluency that we interpret as understanding or comprehension, but may actually be a product of low-level perceptual priming. Similarly, information coming readily to mind can be interpreted as evidence of learning, but could instead be a product of cues that are present in the study situation, but that are unlikely to be present at a later time. We can also be misled by our current performance. Conditions of learning that make performance improve rapidly often fail to support long-term retention and transfer, whereas conditions that create challenges and slow the rate of apparent learning often optimize long-term retention and transfer.

**Learning versus Performance**

This apparent paradox is a new twist on an old and time-honored distinction in psychology—namely, the distinction between learning and performance. Performance is what we can observe and measure during instruction or training. Learning—that is, the more or less permanent change in knowledge or understanding that is the target of instruction—is something we must try to infer, and current performance can be a highly unreliable index of whether learning has occurred.

**LEARNING WITHOUT PERFORMANCE AND PERFORMANCE WITHOUT LEARNING**

Decades ago, learning theorists were forced to distinguish between learning and performance because experiments revealed that considerable learning could happen across a period when no change was apparent in performance. In latent-learning experiments with animals, for example, periods of free exploration of a maze, during which the animal’s behavior seemed aimless, were shown—once reward was introduced—to have produced considerable learning. Similarly, in research on motor skills, investigators found that learning continued across trials during which the build-up of fatigue suppressed performance.

More recently, a variety of experiments—some of which we summarize below—have demonstrated that the converse is true as well: Namely, substantial improvements in performance across practice or training sessions can occur without significant learning (as revealed after a delay or in another context). To the extent, therefore, that people interpret current performance as a valid measure of learning, they become susceptible to misassessing whether learning has or has not occurred.
STORAGE STRENGTH VERSUS RETRIEVAL STRENGTH

At a theoretical level, we (Bjork & Bjork, 1992) distinguish between the storage strength and the retrieval strength of information or skills stored in memory. Storage strength reflects how entrenched or interassociated a memory representation is with related knowledge and skills, whereas retrieval strength reflects the current activation or accessibility of that representation and is heavily influenced by factors such as situational cues and recency of study or exposure. Importantly, we assume that current performance is entirely a function of current retrieval strength, but that storage strength acts to retard the loss (forgetting) and enhance the gain (relearning) of retrieval strength. The key idea for present purposes is that conditions that most rapidly increase retrieval strength differ from the conditions that maximize the gain of storage strength. In other words, if learners interpret current retrieval strength as storage strength, they become susceptible to preferring poorer conditions of learning to better conditions of learning.

Introducing Desirable Difficulties to Enhance Learning and Instruction

So what are these better conditions of learning that, while apparently creating difficulty, actually lead to more durable and flexible learning? Such desirable difficulties (Bjork, 1994) include varying the conditions of learning, rather than keeping them constant and predictable; interleaving instruction on separate topics, rather than grouping instruction by topic (called blocking); spacing, rather than massing, study sessions on a given topic; and using tests, rather than presentations, as study events.

Before proceeding further, we need to emphasize the importance of the word desirable. Many difficulties are undesirable during instruction and forever after. Desirable difficulties, versus the array of undesirable difficulties, are desirable because they trigger encoding and retrieval processes that support learning, comprehension, and remembering. If, however, the learner does not have the background knowledge or skills to respond to them successfully, they become undesirable difficulties.

VARYING THE CONDITIONS OF PRACTICE

When instruction occurs under conditions that are constrained and predictable, learning tends to become contextualized. Material is easily retrieved in that context, but the learning does not support later performance if tested at a delay, in a different context, or both. In contrast, varying conditions of practice—even varying the environmental setting in which study sessions take place—can enhance recall on a later test. For example, studying the same material in two different rooms rather than twice in the same room leads to increased recall of that material (Smith, Glenberg, & Bjork, 1978)—an empirical result that flies in the face of the common how-to-study suggestion to find a quiet, convenient place and do all your studying there.

A study of children’s learning provides a striking illustration of the benefits of varying conditions of practice. Eight-year-olds and 12-year-olds practiced throwing beanbags at a target on the floor with their vision occluded at the time of each throw. For each age group, half of the children did all their practicing throwing to a target at a fixed distance (for example, 3 feet for the 8-year-olds), while the other half threw to targets that were closer or farther away. After the learning sessions and a delay, all children were tested at the distance used in the fixed-practice condition for their age group (Kerr & Booth, 1978).

Common sense would suggest that the children who practiced at the tested distance would perform better than those who had never practiced at that distance, but the opposite was true for both age groups. The benefits of variation—perhaps learning something about adjusting the parameters of the motor program that corresponded to the throwing motion—outweighed any benefits of being tested at the practiced distance. Many other studies have shown that when testing after training takes place under novel conditions, the benefits of variation during learning are even larger.
SPACING STUDY OR PRACTICE SESSIONS

The effects of distributed practice on learning are complex. Although massing practice (for example, cramming for exams) supports short-term performance, spacing practice (for example, distributing presentations, study attempts, or training trials) supports long-term retention. The benefits of spacing on long-term retention, called the spacing effect, have been demonstrated for all manner of materials and tasks, types of learners (human and animal), and time scales; it is one of the most general and robust effects from across the entire history of experimental research on learning and memory.

Rather than describing any of the myriad studies that have demonstrated the benefits of spacing, we will simply stress the importance of incorporating spacing and avoiding massing in managing learning. Massing repeated-study activities is often not only convenient, but it can also seem logical from the standpoint of organizing one's learning of different topics, and it frequently results in rapid gains in apparent learning. Good test performance following an all-night cramming session is certainly rewarding, but little of what was recallable on the test will remain recallable over time. In contrast, a study schedule that spaces study sessions on a particular topic can produce both good exam performance and good long-term retention. Furthermore, because new learning depends on prior learning, spacing study sessions optimally can also enhance transfer of knowledge and provide a foundation for subsequent new learning.

INTERLEAVING VERSUS BLOCKING INSTRUCTION ON SEPARATE TO-BE-LEARNED TASKS

Interleaving the practice of separate topics or tasks is an excellent way to introduce spacing and other learning dynamics. In a classic comparison of interleaving and blocking (Shea & Morgan, 1979), participants practiced three different movement patterns, each requiring the participants to knock down three of six hinged barriers rapidly on a pinball-like apparatus in a prescribed order. All participants received 18 trials on each pattern, but in the interleaved condition, practice on a given trial was randomly determined, whereas in the blocked condition, one pattern at a time was practiced.

As you probably suspect, participants given blocked practice improved more rapidly than those given interleaved/random practice. Thus, if the researchers had stopped their study at the end of training, blocking of practice would have seemed the superior learning procedure. But, instead, participants returned 10 days later and were retested under either blocked or interleaved/random conditions. Under interleaved/random testing conditions, participants who had practiced under interleaved conditions performed far better than did the blocked-practice participants, who appeared, when tested under a random schedule, to have learned virtually nothing. Under blocked testing conditions, performance was essentially the same for both groups, but the small difference still favored the interleaved group.

The skills literature includes many replications of the pattern that blocked practice appears optimal for learning, but interleaved practice actually results in superior long-term retention and transfer of skills, and research illustrates that learners—as well as instructors—are at risk of being fooled by that pattern. For example, when participants who had learned three different keystroke patterns were asked to predict their performance on a test the next day, those given interleaved practice predicted their performance quite closely, whereas those given blocked practice were markedly overconfident (Simon & Bjork, 2001). In effect, the blocked-practice group misinterpreted their good performance during practice as evidence of long-term learning, rather than a product of the local (that is, blocked) conditions. Said differently, they misinterpreted the retrieval strength of a given keystroke pattern as an index of its storage strength.

Other results illustrate that the benefits of interleaved practice extend beyond the learning of motor skills. For example, when participants were asked to learn formulas for calculating the volumes of different solids, such as a truncated cone, in either a blocked or interleaved manner, interleaved instruction enhanced performance on a delayed test. The size of the long-term
advantage of interleaved practice was striking: 63 percent versus 20 percent of new problems worked correctly a week later (Rohrer & Taylor, 2007).

More recently and surprisingly, we have found that interleaving even enhances inductive learning (Kornell & Bjork, 2008). When participants were asked to learn the styles of each of 12 artists based on a sample of 6 paintings by each artist, interleaving a given artist's paintings among the paintings by other artists—versus presenting that artist's paintings one after another (blocking)—enhanced participants' later ability to identify the artist responsible for each of a series of new paintings. This result is surprising because blocking would seem to make it easier to note the commonalities that characterize a particular artist's style.

Indeed, as illustrated in Figure 1, the majority of participants—when asked after the test whether interleaving or blocking had helped them learn an artist's style better—definitely had the impression that blocking had been more effective than interleaving, the opposite of their actual learning. Blocking may indeed have facilitated noticing commonalities, but the final test required distinguishing among the artists, and interleaving may have fostered learning the differences as well as similarities among the styles of different artists.

FIGURE 1: The left panel shows the proportion of participants who selected “blocked,” “interleaved,” or “the same” in response to the question: “Under which condition do you believe you learned better?” The right panel indicates the proportion of participants who actually performed better in the blocked or interleaved conditions or performed the same in the two conditions. (Kornell & Bjork, 2008)

Why might interleaving enhance long-term retention and transfer? One theory suggests that having to resolve the interference among the different things under study forces learners to notice similarities and differences among them, resulting in the encoding of higher-order representations, which then foster both retention and transfer. Another explanation suggests that interleaving forces learners to reload memories: If required to do A, then B, then C, and then A again, for example, the memory for how to do A must be reloaded a second time, whereas doing A and then A again does not involve the same kind of reloading. Such repeated reloadings are presumed to foster learning and transfer to the reloading that will be required when that knowledge or skill is needed at a later time.

From the standpoint of our theoretical framework (Bjork & Bjork, 1992), learning from reloading is an instance of a broader dynamic in human memory: Namely, that forgetting (losing retrieval strength) creates the opportunity for increasing the storage strength of to-be-learned information or skills. Said differently, when some skill or knowledge is maximally accessible from memory, little or no learning results from additional instruction or practice.

**GENERATION EFFECTS AND USING TESTS (RATHER THAN PRESENTATIONS) AS LEARNING EVENTS**

An effect that rivals the spacing effect for its generality and its significance for instruction and learning is the generation effect, which refers to the longterm benefit of generating an answer, solution, or procedure versus being presented that answer, solution, or procedure.
Basically, any time that you, as a learner, look up an answer or have somebody tell or show you something that you could, drawing on current cues and your past knowledge, generate instead, you rob yourself of a powerful learning opportunity. Retrieval, in effect, is a powerful “memory modifier” (Bjork, 1975).

Closely related to the generation effect are the benefits that accompany retrieving information studied earlier. Much laboratory research (for example, Landauer & Bjork, 1978; Carrier & Pashler, 1992) has demonstrated the power of tests as learning events, and, in fact, a test or retrieval attempt, even when no corrective feedback is given, can be considerably more effective in the long term than reading material over and over. The reason why rereading is such a typical mode of studying derives, we believe, from a faulty model of how we learn and remember: We tend to think of our memories as working much like an audio/video recorder, so if we read and reread or take verbatim notes, the information will eventually write itself on our memories. Nothing, however, could be further from the way we actually learn and remember.

Unfortunately, the effectiveness of tests as learning events remains largely underappreciated, in part because testing is typically viewed as a vehicle of assessment, not a vehicle of learning. As Henry L. Roediger, Kathleen B. McDermott, and Mark A. McDaniel describe in their essay in this chapter, however, recent research using more educationally realistic materials and retention intervals has clearly demonstrated the pedagogical benefits of tests (for example, Roediger & Karpicke, 2006). Similar to the pattern with variation, spacing, and interleaving, repeated study opportunities appear, in the short term, to be more effective than repeated testing, but testing produces better recall in the long term.

Two other pedagogical benefits of tests must be mentioned: First, tests have metacognitive benefits in terms of indentifying whether information has or has not been understood and/or learned. A student's ability, for example, when going back over a chapter in a textbook, to judge whether information will be recallable on an upcoming examination is severely limited, whereas attempting to answer a fellow student's questions on the chapter can identify what has and has not been learned.

The second, related benefit is that tests can potentiate the effectiveness of subsequent study opportunities even under conditions that insure learners will be incorrect on the test (Kornell, Hays, & Bjork, 2009). Again, the basic message is that we need to spend less time restudying and more time testing ourselves.

Concluding Comments

For those of you who are students, we hope we have convinced you to take a more active role in your learning by introducing desirable difficulties into your own study activities. Above all, try to rid yourself of the idea that memory works like a tape or video recorder and that re-exposing yourself to the same material over and over again will somehow write it onto your memory. Rather, assume that learning requires an active process of interpretation—that is, mapping new things we are trying to learn onto what we already know. (There's a lesson here for those of you who are teachers—or parents—as well: Consider how you might introduce desirable difficulties into the teaching of your students or children.)

Be aware, too, when rereading a chapter or your notes, that prior exposures create a sense of familiarity that can easily be confused with understanding. And perhaps most importantly, keep in mind that retrieval—much more than restudying—acts to modify your memory by making the information you practice retrieving more likely to be recallable again in the future and in different contexts. In short, try to spend less time on the input side and more time on the output side, such as summarizing what you have read from memory or getting together with friends and asking each other questions. Any activities that involve testing yourself—that is, activities that require you to retrieve or generate information, rather than just representing information to yourself—will make your learning both more durable and flexible.
Finally, we cannot overstate the importance of learning how to manage your own learning activities. In a world that is ever more complex and rapidly changing, and in which learning on one’s own is becoming ever more important, learning how to learn is the ultimate survival tool.

**Please describe your current position and research interests.**

Elizabeth Ligon Bjork: I am Professor of Psychology and Immediate-Past Chair of the University of California, Los Angeles, Academic Senate. My research interests have included visual attention and developmental processes but now focus on practical and theoretical issues in human memory and learning, particularly the role that inhibitory processes play in an efficient memory system.

Robert A. Bjork: I am Distinguished Professor and Chair of Psychology at the University of California, Los Angeles. My research focuses on human learning and memory and on the implications of the science of learning for instruction and training.

**How did you get interested in studying the facilitating effect of apparent impediments to learning?**

Elizabeth Bjork: My interests in optimizing learning were triggered by interactions with students lamenting during office hours how hard they had studied, only then to perform poorly on a just-given exam. This motivated me to examine why students’ study activities were sometimes so ineffective.

Robert Bjork: My interests go back to my efforts — as a graduate student — to understand the relationship of forgetting and learning, especially why inducing forgetting often enhances subsequent learning. My interests in the application of “desirable difficulties” were fanned by my experiences teaching and coaching and from what I learned as Chair of the National Research Council Committee on Techniques for the Enhancement of Human Performance (1988–1994).

**What has been the real-world impact of this work?**

Overall, the impact has been slight. There are multiple indications, however, that the impact of basic research findings on educational practices is increasing and that, in particular, optimizing instruction will require unintuitive innovations in how the conditions of instruction are structured.

As teachers — and learners — the two of us have had both a professional and personal interest in identifying the activities that make learning most effective and efficient. What we have discovered, broadly, across our careers in research, is that optimizing learning and instruction often requires going against one’s intuitions, deviating from standard instructional practices, and managing one’s own learning activities in new ways. Somewhat surprisingly, the trials and errors of everyday living and learning do not seem to result in the development of an accurate mental model of the self as learner or an appreciation of the activities that do and do not foster learning.

**Suggested Further Reading**


References


What is the Significance of Study at the Research University?

—Kurt Xyst, M.Ed., Ph.C.

The University of Washington is many things: a collection of colleges, the inhabitant of a famously beautiful campus, the largest employer in Seattle, to name a few. The UW is also a research university. For students considering study here this fact is particularly salient. Attending a research university is not like attending a “great books” liberal arts school or a community college. The research university has a different feel, a different orientation, than other institutions of higher education. Without a working recognition of the ethos of the research university many of the things that happen here, and many of the things that are expected of undergraduate students, can seem strange or arbitrary.

What then does undergraduate study at a research university signify? For many the term “research” conjures images of lab coats, beakers, and microscopes, or perhaps reams of paper spilling across a room of crowded desks. Or, in the case of UW, a wind tunnel. All these images are correctly associated with the trappings of research, but only with particular kinds of research. Not every student encounters these exact things and yet it is perhaps possible to say that every UW student experiences an education at a research university. I think there is good reason to argue that the point of a research university is not to train undergraduates in the expert use of the equipment of the arts and the sciences (the beakers, the statistical software, the wind tunnel.) Instead the fundamental task of a research university lies closer to the development of what 20th century German philosopher Gadamer calls a “research consciousness.” The calling card of someone with a research consciousness is the strong habit of doubt, of opening up what seems obvious to others, of liquefying what has been cast in stone. It is the tendency to question. The consciousness of the researcher, the “product” of undergraduate study at UW, perceives unsettledness where others may only see tradition or procedure or orthodoxy.

How can this be the case, how can questioning possibly be a more important aspect of undergraduate education when the UW Mission and Vision Statement emphasizes creating knowledge? Doesn't knowledge signify that a question has been answered, that an issue has been settled? The short answer is no, not for research consciousness. Every attempt to respond to a problem or to provide an expression or an explanation for a given question creates new kinds of "unsettledness." Something unrealized before now pops into view. New puzzles appear and new questions can be formulated. As John Dewey describes it, a new “invasion of the unknown” begins. Research consciousness, therefore, actively returns questioning to the top of the agenda. Research consciousness prefers questions to answers.

Let me now try to say something about why this sort of education, and education based on questioning, may be valuable. To be sure an education at a research university is not primarily about preparing future scientists and scholars in a formal sense. The expectation is not that everyone who graduates from UW will take up a job as a faculty member somewhere. The
benefits of an education at a research university are at least as useful, perhaps even more useful, for the vast majority who will go on to perform other roles in public life, especially democratic life. Here are two explanations why. Undergraduate education based on the development of research consciousness fosters an increased appreciation of, and comfort with, complexity. Research universities, especially UW, are the most varied and experientially rich environments in our culture. Collisions between different ideas, customs, expectations, and methods are cultivated and encouraged. Marinating in this environment research consciousness come to see that there's always more going on underneath the surface — in or out of the classroom — than meets the eye. It is always possible to ask yet another question, a different kind of question. Final answers, therefore, are impossible. There's always more to think about and talk about, there's always more to understand! Now, in the abstract the idea that there is never a final answer is a bit overwhelming. There is a practical payoff, though. If all things are contingent all things are available to be influenced and changed. Nothing is destined to remain the way it is now. New approaches can be developed, new methods can be adopted, and new interpretations can be brought to bear in the light of perceived need. The world of contemporary medicine, for example, has come about from questioning traditional knowledge about the formulation of disease and illness, disability and wellness. The painting of Goya presents to research consciousness not only an aesthetic object or a visual field of color and technique. It also opens the world of Spanish history and politics, perhaps even trade and science. These worlds lie dormant until activated and inhabited by research consciousness.

Sustained exposure to complexity, coupled with recognition of the power of questioning seems to create a second educational benefit: intellectual humility. Truly grasping the idea that no issue is every fully settled or ever fully understood entails accepting the reality that even the best ideas are partial and far from perfect. Research consciousness accepts limitations of its capacities because it is rooted in the unavoidable limitations of what it means to be human. It is impossible to inhabit every perspective at once, to pose every question simultaneously. Intellectual humility provides relief from the illogical (though often emotionally powerful) expectation that one person can ever get it “right.” This is where authentic appreciation and real desire for collaboration comes from. There are more questions to ask than any one individual can possibly get to and more ways of understanding than any one individual can embody.

There is much more to think about regarding this question of the significance of study at a place like UW, but I will close for now with this. Those who have spent time at research university undoubtedly agree that it is a unique community. That uniqueness seems to come from the fact that no other place in our culture is dedicated to an ongoing project of inspiring its members to question everything. In the end it is not the tools and techniques of researchers that, by themselves, give rise to the spirit of the place. It is instead a larger dedication to the idea that research consciousness is a powerful force for change and understanding in the world at large.
Major Decisions: How to Pick Your Major in College

—James Tunstead Burtchaell, C.S.C.

More than two out of every three undergraduates at the University of Notre Dame change majors between the time they are accepted and the time they graduate. A good number change two or three times. Any decision that has so many students second-guessing must be tricky, and it is.

The subjects are unknown...

The difficulties come from several directions. First, there are so many options that you had no opportunity to sample in high school. Everyone has some experience studying literature, mathematics, French and physics, but no high school in the country offers electrical engineering. Nor can you get a running start in microbiology or finance or metallurgy or philosophy. More than half of the disciplines we offer are new to you. So how can you have a responsibly cultivated preference early enough to select one as your principal interest here?

The choice is pressured...

Another difficulty is pressure. Some students get pretty clear advice from their parents about what a sensible major would be. Most of that advice tends to have something to do with earning a living after college. And much of it is bad advice.

In the old days there were parents who threatened to cut off tuition money unless their child studied the subject they thought was right. That rarely happens today, but there is another kind of pressure that may be worse. There are few students at Notre Dame whose parents didn't make sacrifices for them to be here. And most students are backed by parents who didn't have, or weren't free to accept, the kind of education they worked hard to provide their children. The result: Most people on this campus walk around with an abiding and compelling sense of gratitude to their parents.

For every student here whose parents have told him what to study, there are a hundred whose parents never breathed a word of instruction on the matter. But most of those hundred, in the privacy of their hearts, want to make a choice that will satisfy their parents. They are drawn to major in subjects their parents can see as oriented towards a useful future. One somehow feels it would be ungrateful to receive a first-rate university education and not put it to maximum use from the start. That is a more insidious and damaging form of pressure precisely because there is nothing the parents can do to change it. They had nothing to do with imposing it.

In addition, high school counselors often talk to seniors in a way that is excessively career oriented. They make the student aware, even before she sets foot on a college campus, that she is going to higher studies with an eye towards an eventual profession or job. The message is that it is wasteful to spend four years without any clear idea of where all that expensive study is leading.

The "competition" is strong...

Students also have a tendency, especially in their early years at college, to feel crowded by competition. Most freshmen look up and down the corridor the first week they're here and feel intimidated. Everyone they encounter seems to have been a valedictorian, student council president, all-state breast-stroke champion, National Merit finalist, congressional intern and published poet.
I exaggerate, of course, but most people here are used to being at the head of the line. That is how you got here. Now you are at a place with a lot of others who were at the head of their lines, and there just isn’t room for all of you at the top of this class. So you tend to figure that your choice of study here will have to be canny and careful if it's going to make you competitive with such bright and aggressive classmates.

After a few years you discover everyone else is as normal as you, but by then you've begun to worry that since Notre Dame accepted you it must be a second-rate institution. There are all those other more talented people out there at better places who, when they emerge, are going to have a running start on you. So your choice of what to study is fretful because you have these other, more quick-witted people to compete with.

Those are three difficulties that most of you have to cope with: the subjects are so unknown, the choice is so pressured, and the competition is so strong. Unfortunately these difficulties cause students to stumble into a few classical misunderstandings, which in turn lead them to wrong decisions about their major.

Confusing education with training...

The first misunderstanding is to confuse education with training. An institution that offers you training is trying to provide you with the information and skills you need for a specific career. A law school must acquaint you with how to interview clients, how to plead before a court, and how to draw up proper legal documents. A welding academy will teach you the materials and methods of that trade. Advanced training in computing will prepare you not simply to keypunch or to program, but to create software, to understand the mysteries of central processing, and then to grasp the theoretical underpinnings of applied mathematics.

All of that is training: specific knowledge needed for specific professional or skilled work. It is not education.

Education is the opportunity, through studying a variety of subjects, to gain the information and the dexterity to use your wits and your expression. Education prepares you to be someone — more than to do something. Education is what prepares you to hear more when you listen, to reach deeper when you think, to say more when you speak.

Education is quite different from training, which prepares you in advance to do the tasks that are well known in a given job. Education prepares you in advance to see beneath and beyond what is well known. The principal value that an educated person brings to her career is intelligence. What one wants of an educated person, beyond his skills, is the ability to see into problems that cannot be foreseen. A welder must know in advance all the techniques he has to use, but a banker or a physician or a teacher or a member of the city council is expected to move beyond previous experience and apply his wits to the heart of new problems.

A good university such as this one will give you quite a few skills and a broad grounding of information. But we do not exist to teach skills to undergraduates; we do that in our graduate and professional programs. The result of a college education should be a person whose mind is enlivened and whose imagination is limber. John Alexander Smith put it this way:

You are now about to embark upon a course of studies which will occupy you for several years. Together they form a noble adventure. But I would like to remind you of an important point. Some of you, when you go down from the University, will go into the Church, or to the Bar, or to the
House of Commons, or to the Home Civil Service, to the Indian or Colonial Services, or into various professions. Some may go into the Army, some into industry and commerce, some may become country gentlemen. A few — I hope very few — will become teachers or dons.

Let me make this clear to you. Except for the last category, nothing that you will learn in the course of your studies will be the slightest possible use to you in after life, save only this: that if you work hard and intelligently you should be able to detect when a person is talking rot, and that in my view is the main, if not the sole, purpose of education.

People fortunate and qualified enough to receive a university education will make their living by their wits. You will serve less by what you have learned than by what you can learn.

**Choosing a major is not choosing a career...**

The good thing about education is that it matters hardly at all what subjects you choose to study. You can be educated in any discipline, because there is no direct connection between an educational subject and a specific career. So never ask what you can do with your major.

This touches on the second classical misunderstanding that has led so many students astray. The choice of a major is not the choice of a career. Undergraduates are not making lifetime decisions. When they imagine they are, it can be paralyzing.

Let me say a bit more about that. Some talents show themselves early in life. If you are an excellent athlete, you already have the coordination and stamina and pleasure from sports in your early teens. Nobody suddenly develops into a star athlete in her 30s. The same is true for mathematical ability. If you are good at quantitative understanding, you are already good at it in junior high school; in fact, you tend towards high achievement in math and other related subjects. You know science is your strong suit, and you come to college aware that you will study science and excel in it.

Then things go wrong. Physics will begin to bore some of you. You will conceal from your parents that you signed up for a few extra theology courses, and you’ll write poetry by flashlight under the covers at night. You may plug on and earn good grades, but with less & less appetite.

It is disconcerting to develop a new range of interests when your track record of achievement and satisfaction is so definitely in another direction. But that is what happens when a new range of talent begins to mature and to rival other talents that had declared themselves earlier. No one tells you in advance that philosophical thinking matures later than mathematical thinking. The choice of a major needs to be slowed down to allow you to get confirmation of your emergent strong interests and abilities.

But even then, near the close of your sophomore year, you are only choosing a major, not a career. Still more developments and experiences will come. Fixing on a lifetime career when you are a sophomore in college is like getting engaged at fourteen.

What you study here may have little necessary connection with what you will do later. We give baccalaureate degrees in about forty disciplines and in many combinations of subjects. But people graduate in philosophy and end up lawyers. They study mechanical engineering and end up as business executives. They get degrees in English and go to medical school, do art history and run the family business, choose chemistry and go into politics. They major in sociology and become priests. They finish in accounting with their CPAs and choose to be homemakers and mothers.

Even if they emerge from a program most students would consider a direct pipeline to a specific profession — architecture, for example — they are really much more free than you would suppose. Do you know how many people with degrees in architecture practice architecture?
About half. So consider yourself enhanced, rather than caught, by what you choose to study. You are not making a lifetime decision, you are making a decision for the next two or three years...or until you change that decision.

This is not to say that there should be no natural growth from study to career. It does imply, however, that educated people have such enormous advantage and versatility that they retain a basic freedom to do whatever they please in life. To have graduated in any discipline that Notre Dame offers in no way forecloses career possibilities. It has become increasingly the case that you will enter a career which requires or provides specific training. About 60 to 70 percent of you will go on to graduate or professional schools; others to corporate training programs. Do not suffer a failure of nerve by imagining that you are more attractive to employers if you have more advanced professional training. For then you will forfeit the unrepeatable and more valuable opportunity to get an education first.

You have talents that will be enormously attractive to employers; talents so superior that you are free to make your living by your wits, your versatility of understanding, your imagination. Don't double-think the future.

Select what you want to study...

The temptation is to figure out your career and then choose the studies that lead up to it. That is exactly the wrong way round. You are not ready to choose a career, except in the most tentative and speculative way. You are barely ready to choose a major. Select what you want to study with the belief that it will lead you to the point of deciding well, not quite your career, but what you will do after graduation.

What educates you best is not what you figure will lead somewhere, but what you now believe will give you most enjoyment. Pick your major on the pleasure principle, for what you most enjoy studying will draw your mind in the liveliest way to being educated.

If you want to study medieval history, don't fret about what you can do with it. You are not at a trade school. If you want to study marketing, do it because you find marketing the most fascinating subject we offer. If you came to Notre Dame determined to become a physician but in your freshman year you couldn't stand math and you failed chemistry and you threw up over your laboratory frog, there's a message there. It's not that you are incapable of becoming a doctor, but that the kind of disciplines that govern a doctor's work do not really appeal to your appetite. If in the meantime drama has caught your eye, then make that your choice and let the future handle itself. Or, more accurately, let it help you to become more qualified to determine the future. If throughout the course of four years you progressively follow your intellectual nose into what fascinates you most, when you emerge you will be in a much wiser position to choose the threshold of the proper career than you were at the start.

In the meantime don't feel pushed to make the decision prematurely. Our curriculum is versatile enough that the decision can be reviewed and postponed and changed. I am not arguing for indecision or instability. I am merely pleading for a sense of freedom.
Pleasure and fascination...

Let me put it this way. Imagine you are told now that on graduation day you will die. It will be painless and gentle; you will slowly and beautifully fade, right here on the main quad, with family and roommates gathered round, the Glee Club singing under the trees, and Father Hesburgh giving you a potent final blessing. Knowing of your death now — realizing that whatever your major is it can never lead you into a career but will be only for your pleasure and fascination — would it make any difference what you choose to study in the interim? If it would, then you ought to change. Ironically, what you then choose will lead you, by steady and proper pacing, into the most reliable future.

It is essential to realize that any major can lead to any career, and that the best major is the one you choose with no look out of the corner of your eye to where it will lead.

Once that is cleared up, the difficulties are less difficult. Yes, most of the majors possible here are subjects you cannot have studied before. So use the first and especially the second year to explore. Use the freedom the curriculum provides. Far too many men and women graduate from here and come to this regret: if they had it to do over again, or had had the nerve earlier, they would study another subject.

Parental pressures, revisited...

As for the pressure from parents whose approval you seek, remember: if you are mature enough to undertake university studies, you have to be mature enough to choose those studies. You might choose unwisely, but it should be your choice.

Parents who virtually demand what their children will study at college are misguided and, fortunately, rare. I think parents ought to have the freedom to suggest or lobby for a choice of major, but you take away your parents' freedom if you transform their cue into a command. Parents ought to be able to promote an idea without children complaining they are being forced or browbeaten. If your parents do suggest a course of study, give it serious thought, but don't pretend you owe it to them to follow their recommendation.

And don't get up a guilt if you choose another major; because you may in fact be trying to make them feel guilty for something they never did.

And if you feel tempted to make a curriculum choice to gain your parents' respect: don't. If you have anything to be grateful for, it is that your parents have wanted you to get the best education within your reach and theirs, precisely so that you could and would make these kind of decisions responsibly for your own satisfaction. If they didn't want you to develop independent judgment they would have kept you home.

Competition, revisited ...

How can you choose your major to sidestep most of the rush-hour traffic of competition? By ignoring competition. Only about 40 percent of your fellow Americans manage to enroll in college, and only about half of those graduate. Virtually all of you at this University will complete your degree requirements. That puts you among the top fifth of all people your age. And among that 20 percent, only the most highly qualified are competitive for admission to a university like Notre Dame, which means you have educational opportunities that rank you among the top one or two percent in the country.

It makes one feel uneasy to hear such talk of exclusiveness, but these are simple facts. So when you get uneasy because everyone in the corridor seems pretty swift of mind: calm down. You
are moving among classmates who have the same advantaged education you have, who have been sieved through highly selective admission processes. After a while they may begin to look ordinary enough, but they aren't. And you aren't. The older one gets and the more experience one accumulates, the more clear it becomes that the number of really quick-minded people is small. You wonder how the world gets by with so few. Rather than imagining yourself as part of a large, capable crowd trying to crush through a narrow doorway of opportunity, it is more realistic to understand you are advantaged to an embarrassing degree, and there aren't nearly enough of you to go around.

**Self-knowledge is essential...**

To select a major program of study wisely you need not figure out what other people want of you. You need to figure out what you want. And that's not easy. It requires much self-knowledge.

But that is both what education gives and what education requires. William Johnson Cory, a Cambridge man, expressed impatience when critics complained that English schools were offering an education that was not useful enough. Education was not supposed to be useful, he retorted.

You are not engaged so much in acquiring knowledge as in making mental efforts under criticism. A certain amount of knowledge you can indeed with average faculties acquire so as to retain; nor need you regret the hours that you spent on much that is forgotten, for the shadow of lost knowledge at least protects you from many illusions.

But you go to a great school, not for knowledge so much as for arts and habits; for the habit of attention, for the art of expression, for the art of assuming at a moment’s notice a new intellectual posture, for the art of entering quickly into another person’s thoughts, for the habit of submitting to censure and refutation, for the art of indicating assent or dissent in graduated terms, for the habit of regarding minute points of accuracy, for the habit of working out what is possible in a given time, for taste, for discrimination, for mental courage and mental soberness.

Above all, you go to a great school for self-knowledge.

There are crucial freedoms that others can neither keep from us nor give to us. We must take possession of them ourselves. The sense of freedom that leads one to follow his or her own sensible instincts into a major course of study, confident that if one does that, then — and only then — will one be ready to make other even more crucial decisions: that is the sense of freedom I urge upon you before it is too late, and even before it is too early. Go ahead.

**Expand your academic horizons...**

And after you have made your choice, remember that your major is only a minor portion of your higher education. You are invited — prodded — to surround and enliven your mind with elective courses. Relish them. The instructors in your discipline believe that you can never study enough of it, and some of us would advise you to take every elective our discipline has to offer. That is because we hanker to have our students love what we love, and this tempts us to tempt you to forego your education and begin training in our field. Instead, browse in the clover.

When I was an undergraduate in philosophy, we were directed to read only primary sources: only the great thinkers, not the secondary folks who wrote textbooks about them. Excellent. But in retrospect, the good times were the hundreds of hours when I got lost in the stacks of the library and read my fascinated way through an education that no one had planned, but was lavishly provided.

Your duty is to enjoy. Nothing you might do could be more useful.