

TEACHING RESOURCE MANUAL

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PREFACE

Teaching is one of the most rewarding and challenging activities! Whether we call ourselves teachers, instructors or educators, we are always facilitators in our students' pursuit of knowledge. One of the most important aspects of teaching is to instill in students a life long need to learn, the desire to learn and the joy in trying to understand the world around them. We want to help students think for themselves, to question and most of all to reflect on the information presented to them. This is probably the most challenging of our roles, since too many students believe because something is written, it is truth, and so it must be memorized and never questioned. Through teaching I want to help students become comfortable with and joyful about their own inquiring minds and to open that door if it is closed.

Teaching is a creative activity. There are many ways to teach, instruct or facilitate and many more can be created. It is part of the challenge of teaching to bring students to the point where they are willing, and even eager, to learn. William Arthur Ward wrote: "The mediocre instructor tells; the good instructor explains; the superior instructor demonstrates; the great instructor inspires". The aim of education is to assist individuals to learn to think for themselves and not merely follow what someone else has told them. As Mark Van Doren said "the art of teaching is the art of assisting discovery". The way for instructors to accomplish this is to concentrate on what M.F. Ashley Montagu called "the drawing out, not the pumping in". "It is by stimulating a zest for learning in general that instructors perform their greatest service to their students, for a zest for learning, is a zest for life".

Instructional skill, as any valuable talent, takes time to develop; even natural athletes spend hours training. Teaching requires similar attention, caring and practice. Be patient! Try a few new ideas and improve on some old ones to make your teaching experience challenging and effective. There are many styles of teaching and it takes time and experience to develop and refine your own personal style. As Roberts (2002) says "Excellent teaching is an art. It can be informed by science, by empirical studies that illuminate the social processes of teaching and learning, but it remains a dynamic and challenging craft".

Your personal evolution as a teacher begins when you discover the joys and challenges of teaching, perhaps as a graduate teaching assistant, an older sibling, or a club leader. My own personal journey began before I started school but knew I wanted to be a professor! I really began actively working to become a good teacher as a graduate student teaching assistant over 20 years ago.

Over those two decades, I quickly learned that students look to university instructors to provide current and relevant facts. They did not always have the inquiring minds nor the joy in learning I expected; they seemed too bogged down with daily schedules and memorization for exams to critically think about what they were learning. This observation was disturbing, but it helped form my basic teaching philosophy. I decided that in my teaching I would stress understanding, application and reflection, not the memorization of facts alone. I knew I had to help my students become critical thinkers. I stressed understanding concepts and principles and provided a balance of factual and reflection type questions in exams and classes. I introduced discussion sessions. These techniques worked, but students still wanted to focus on what they needed to know for exams and were not always comfortable with my philosophy that they also needed to reflect on what they were learning. When I taught my first large class in 1989, I continued reflective and application questioning to facilitate understanding of factual material in spite of the large

amount of marking. I developed discussion leadership skills and tested them, with much success. I tried introducing cooperative learning experiences for my students, such as group assignments and discussion, to reduce competition for marks and to show how much students know and can share with each other.

When planning courses and classes I focus on content and methods to help students learn. I keep content current and build in research results and theories. I believe flexibility is important and have more than one plan to achieve a class objective. I know structure and order are critical in effective classes and strive to set ground rules we can all work with. At the same time I work to build an atmosphere of trust, genuine caring and flexibility so students do not feel stifled. I gain the respect of my students early in a term so we can work together to accomplish teaching and learning goals. I believe a class needs to flow like a good movie, always making opportunities for the rich unexpected experiences that evolve if you keep your senses open and in tune with your students.

I use a variety of teaching methods including lectures, discussions, demonstrations and ways to get students actively involved such as problem solving and student presentations. I invite guest speakers, set up panels on intriguing issues and develop role playing situations. I mix methods to keep my classes lively and varied. My students tell me they love my side stories, the anecdotes and experiences I illustrate principles and processes with. My main teaching strategy is to use what works to gain student interest and active participation. I am not hesitant to try new things and to get on with something else if a strategy fails. I share failures with my students; we discuss why things I tried in class didn't work. I gain insight and they have a role model for creative risk taking. I engage students in planning classes and finding what interests them and what they think they need to learn, having them take ownership of and responsibility for their own learning opportunities.

I focus on different student learning styles and use various visual, oral and hands on types of class presentations. I use a combination of overheads and chalkboard when presenting factual material. I often give students copies of material that would otherwise require excessive note taking so that they can concentrate on what I am discussing or presenting.

Personal contact with students is essential to and greatly enriches my teaching. I learn student names in the first few weeks, even in my large classes. My students need encouragement to talk and to become comfortable with their own questioning minds, so I emphasize my availability for informal discussions. I go to class 15 to 20 minutes early and try to be available for 10 to 20 minutes after class. I let the students know that I am interested in their ideas by providing time during class for comments and questions. I usually have scheduled office hours that I strictly adhere to, as well as open door office time when my schedule permits and before major assignments and exams and at the beginning of each course. I use email regularly as a useful way to accommodate the schedules of both myself and my students.

I pay close attention to course evaluations at the end of term and give students an opportunity for midterm evaluations. After I summarize their midterm comments I discuss them in class and tell students how I plan to deal with each concern or why I will not change something they would like to see changed. I find this keeps them active in the class and helps them to feel that they have some ownership of their learning opportunities. In my fourth year courses I often create email distribution lists or majordomos to encourage students to discuss class topics with each other and to provide feedback to me about how a course is going.

I do not focus on short term memory testing. I am well known for innovative assignments and students often tell me they really enjoyed working on them. I give one page decision making papers, case studies, reflective essays, board games, children's stories and Socratic dialogue assignments. I regularly change my assignments, often give students choices in types of assignments they can do and try to give them a variety of assignments that reflect different student learning styles. I have involved the public and industry in evaluating senior student projects such as posters or presentations so students can understand how their work is viewed by potential employers. Many students go that extra mile to be creative in their assignments because they are enjoying the learning process. One year a group of students developed a video, another group did a dramatic skit and two students presented their physically based science project as a children's story. Students are pleasantly surprised when I encourage creativity and tell them that science does not have to be just a term paper in a strictly adhered to format. I stress the importance of good communication and give plenty of opportunity for students to learn different modes of presenting their ideas including a detailed over 100 pages report.

I want students to benefit from my comments as they work in the course. I tell them if they hand in a draft assignment one week prior to the due date I will provide general comments. This helps them know I am interested in their development and will do my best to provide them with opportunities to do as well as they can in the course. I give a lot of written feedback on assignments and include notes for students who do not do well and tell them I am willing to meet with them to discuss the assignment.

My evolution as a teacher continues. Each year I learn more and each year I have more to offer my students. My chosen career path continues to be filled with growth opportunities and immense satisfaction. I have not tired of teaching in all these years. My chosen road is still challenging and exciting, be it a straight and narrow highway or a meandering, gravelly side road. The magic in connecting with students and helping them make learning a joy and a necessity for life is still there. May you find that same magic in your own personal evolution as a teacher.

Anne Naeth
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The evolution of this manual began with the long time goal of providing a teaching manual for graduate teaching assistants (GTAs) at the University of Alberta that I shared with Bente Roed, Director, University Teaching Services. The first edition of the manual was developed and piloted in the Faculty of Agriculture and Forestry during the 1990-1991 Winter Session, with funding provided by the Dean's Office from Endowment For The Future. I thank Dr. Ed Tyrchniewicz, the dean at the time, for his support of the project. I was a graduate student myself, and thus the manual was focused mainly toward GTAs. The second edition of the manual was prepared in response to numerous faculty members and department chairs who commented that their academic staff were also major users of the manual. Thus the second edition was meant for all instructors, but a special section was retained for GTAs. In this third edition, I have added some new material and ideas gleaned from another 10 years of teaching. I have also reorganized several sections to make the manual easier to use.

I offer special thanks to Bente Roed for her constructive advice and editorial comments throughout the preparation of the manual, all three versions of it. I acknowledge her vision, her dedication to teaching and her on going encouragement and support. I acknowledge Dr. Frank Aherne who shared our goal and thank him for his advice and encouragement. I am grateful to Dr. Graham Fishbourne for his helpful suggestions with the second edition.

The numerous people who offered comments and helped obtain material are also gratefully acknowledged. Referenced material in this manual has been included in the selected bibliography. However, there have been many other people, articles and presentations which have influenced my personal philosophy of teaching and the development of my own teaching style. Thus they have influenced the content of this manual. I acknowledge all these sources.

My colleagues here at the University of Alberta and abroad have been special sources of inspiration and I thank them. I especially thank my co-instructors from the past who have showed me so much about what it is to be a good teacher, how the uniqueness in each of us can be expressed as a teacher: Dr. Vic Adamowicz, Dr. David Chanasyk, Dr. Al Jobson and Dr. Jason Montgomery. Thanks to my teaching colleagues in Thailand who assisted with the translation of the second edition into Thai.

I am so grateful to the thousands of undergraduate and graduate students who have helped me find that I am a teacher. They continue to inspire and enrich my life's work. To them and the thousands more to come I dedicate this manual.

HOW TO USE THIS MANUAL

This manual is intended to help you become a more effective instructor by providing useful tips and information in a condensed, easy to follow format. It often presents general concepts with references to the published body of literature on teaching that you can explore later, then follows with specific tips for you to try in your present situation.

The manual has been designed with a comprehensive table of contents to facilitate your use of it. It is not intended to be read at one sitting, but as a reference for particular topics of interest and when you need quick tips to deal with new or challenging situations. There are numerous references in the bibliography for your pursuit of more in depth material for background and reflection.

Although the manual refers to university teaching specifically, the principles and tips embodied in it can be used by college instructors and any other teachers. The manual also makes specific references to teaching at the University of Alberta, but can be used well beyond this campus.

This manual is published by University Teaching Services, University of Alberta. If you have any comments on the manual or suggestions for future revisions, please contact the Program Director at 780-492-2826 or visit the office in 215 Central Academic Building. Anne Naeth is also very interested in your comments, suggestions and experiences. If you wish to contact her you can do so by email (anne.naeth@ualberta.ca).

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I. TEACHING ROLES AND RESPONSIBILITIES

1. Roles of the University Instructor

During your tenure as a university professor, instructor or graduate teaching assistant (GTA), you will fill many roles besides the major role of conducting teaching sessions in a formal course (Magnan 1989, McKeachie 1978). The following common roles of a university instructor are generally summarized and specific information applicable to each can be found throughout this manual. There are other roles that you might find yourself in, such as moderator, advisor, referee, mediator, counselor and advisor, to name only a few.

The Expert

You are in the classroom because of your knowledge of the subject area, your experience and your wisdom. That does not imply you know it all, only that you know more about the subject than your students. Students expect expertise, but are realistic and perceptive. You must know the basic principles of and keep up on the latest research in the field in which you are teaching. If you cannot answer a question, admit it, then find the answer or direct the students to where they might seek it.

The Formal Authority

You are in charge of the course and you need to provide structure for the learning experience. Set standards, goals and deadlines or implement those established by your administrative unit. Control classroom behaviour and be aware of emergency procedures.

The Socializing Agent

Students see instructors as more than teachers; an instructor also has a professional identity such as biochemist, engineer, plant scientist or sociologist. University instructors are representatives of their field, especially of the values, assumptions and intellectual style that characterize that particular micro-society. Inform your students of the norms, standards, procedures, activities and interests of your field.

The Facilitator

Listen to your students, question them, pay attention to their needs and interests. When students enter your course inadequately prepared, unable to write well or use the library, you may be tempted to say that's not my job. Instead tell yourself, they're my students. Help them, direct them to resources, give them suggestions and guidance, encourage them, challenge them to develop. That is your job as a facilitator.

The Role Model

Stereotypes such as the absent minded professor, the airhead philosopher and the mad scientist are still prevalent on campus. These are images not people. Although you may model yourself after other good teachers you have known, you must find who you are and then fit the best of what you have learned from others into who you are naturally. Use other good teachers as influences not criteria. Be a role model for your students by letting your character and your individuality show through in your teaching.

The Person

Remember you are human, both inside and outside the classroom. Inspire trust in your students and encourage them to express their ideas, opinions and feelings freely. Humans are not as efficient as machines; sometimes a moment off track can enhance learning more

effectively than a long lecture. Try not to impose your negative feelings onto a class. If you are having a bad day, it is sometimes okay to tell the class, but don't overdo it either in details or frequency.

2. Professional Responsibilities of the University Instructor

University instructors, including GTAs, are expected to maintain high standards of professional conduct. There are comprehensive guidelines from the Canadian Association of University Teachers (CAUT) and “The professor: a statement of goals” that can be obtained from the Association of Academic Staff: University of Alberta (AAS:UA) office. The following summary derives from these sources.

University Instructors as Teachers

The first responsibility of university instructors is the pursuit and dissemination of knowledge and understanding through teaching and research. They must conscientiously develop their scholarly competence and effectiveness as an instructor. They must be conscientious in preparing and organizing their subject material, remaining current with developments in their field. They must encourage the free exchange of ideas between themselves and their students. They have a responsibility to be fair to students, evaluate them objectively and not take advantage of them for personal gain.

University Instructors as Scholars

All scholarly activity conducted within the university must have the primary objectives to increase knowledge and understanding, improve the scholarly competence of the instructor and initiate students into the academic disciplines. University instructors must seek to disseminate the results of their research through publications, lectures and other appropriate means.

University Instructors as Colleagues

University instructors must defend their colleagues' rights to academic freedom and refrain from denigration of colleagues in any inappropriate forum. They must acknowledge in their scholarly works the academic debts to colleagues and students.

University Instructors as University Members

In accepting a university position, university staff members assume obligations to the university other than their primary duties as instructor and researcher. They have the responsibility to participate in university life, in its governance and in its administration by serving on committees and task forces. They have the responsibility to abide by rules and regulations for orderly conduct and to seek reforms which they believe would improve the university.

University Instructors as Part of the Community at Large

In their statements outside the university, university instructors retain the responsibility of seeking the truth and of stating it as they see it. They have a moral obligation to speak out on topics in which they are experts and to offer their expertise to the community at large.

University Instructors as Non-Discriminating Individuals

University instructors have the obligation to be role models of non-discriminating behaviour. They must treat all students with equal respect. They must view jokes or disparaging remarks about individuals based on gender, race, ableness, religion or national origin as

completely unacceptable in and outside of the classroom. They should not tolerate either disparaging remarks or racist or sexist behaviour by students.

3. Roles and Professional Responsibilities of the Graduate Teaching Assistant

As a GTA you may fill many of the same roles as a university instructor, but many are unique to you as a graduate student. See the preceding sections for university instructors for general information. The sections below describe your own unique situation.

The GTA and the University

In the performance of your teaching duties, you will be expected to comply with departmental, faculty and University requirements and expectations for instructors as set out in such policy documents as the Calendar and General Faculties Council Policy Manual. Refer to the Regulations Governing Graduate Assistantships, issued annually by the Faculty of Graduate Studies and Research for basic terms of reference governing GTAs. The regulations govern GTAs paid out of operating funds at the University of Alberta and is a contract between the University and the GTAs which is negotiated between the Graduate Students' Association and the University's Board of Governors.

The GTA and the Faculty and Department

Although the administration of your appointment is normally through a department, you are also a member of a faculty. Hiring criteria and performance appraisals vary among faculties and departments so information should be obtained through your department. Your basic duties as a GTA will have been set out in the Offer of Appointment form provided by your department. Department administrative assistants, professional officers or those in charge of GTAs, are good to talk to about details of your employment such as salary, hours to work, office space or laboratory space. It is advisable to first discuss them with the professor you are working with.

The GTA and the Professor

The most important element in a relationship between a GTA and the supervising professor is open communication (Unruh 1984). Establish this at the beginning of the term and maintain it throughout the course. Misunderstandings occur between professors and GTAs when both fail to communicate. Ask specific questions: shall I come up before class tomorrow; are there any handouts. Discuss the framework and background of the course and clearly delineate duties. Setting up weekly meetings is a good way to foster and maintain open communication. If you feel you have too much work or if there are any problems, it usually helps to talk to the professor (See things to check with your supervising professor in Section VIII).

The GTA and the Student

Much of your interactions as a GTA will be with the students unless you have been hired only as a marker. Research has demonstrated that the most effective GTAs are those who recall their undergraduate experiences and apply them to interactions with their students. A warm, approachable, helpful attitude is important, as are being knowledgeable, possessing or developing the skills of an effective instructor, being non-judgmental, fair and open. The tips in this manual will help you to do that. Keep in mind that you are working with adult learners and they will have a variety of learning styles.

II. THE EFFECTIVE TEACHER

1. Effective Teacher Behaviours

Research on instructor effectiveness supports the assertion that effective instructors display knowledge and organization of the subject matter, instruction skills and good personal qualities or attitudes for working with students. Much of this research has been summarized and discussed by Eble (1988).

Borich (1992) discusses teaching behaviours that are positively related to desirable student performance. He defines five key teaching behaviours that have been consistently supported by research over the past several decades. He also defines five helping behaviours that can be used in combinations to implement the key behaviours. These behaviours are also discussed and modeled in the videodisc "Key teaching behaviours in post-secondary education: exemplars of effective teaching" made at the University of Alberta in 1992.

Teaching Behaviours

- Lesson clarity: how clear and interpretable a presentation is to the class; includes both cognitive and oral clarity with a logical, step by step order and a clear, audible delivery free of distracting mannerisms.
- Instructional variety: the variability or flexibility of delivery during a presentation; includes variability in instructional materials, questioning, feedback types and teaching strategies.
- Task orientation: time devoted to teaching a topic; means having goals and objectives for the course and for each class.
- Engagement in the learning process: maintaining on task behaviour of the students and limiting opportunities for distraction; time in which the student is engaged with and benefiting from the instructional activities.
- Success rate: the rate at which the students understand and correctly complete the exercises.

Helping Behaviours

- Use of student ideas and contributions: includes acknowledging, modifying, applying, comparing and summarizing student responses to promote the goals of a class session and to encourage student participation.
- Structuring: includes comments made by the instructor to put the present task or topic in context with what is to follow or what has occurred in an earlier part of the course or class session.
- Questioning: includes both content and process questions.
- Probing: instructor statements or questions that encourage students to elaborate upon an answer; can include eliciting, soliciting and redirecting expressions.
- Teacher affect: includes enthusiasm maintained with vocal inflection, gestures, eye contact and movement.

2. Effective Teacher Skills

An effective instructor is able to create a climate conducive to learning through the key areas of behaviour and understanding discussed above (Andrews 1982). Skills to do this focus on everyday classroom activities and climate and on interpreting student response,

developing credibility, keeping order in the classroom and using varied instructional methods. Many of the skills associated with these behaviours and details on how to develop them are summarized in Section III on the teaching and learning environment. They include skills to help students think and learn, to motivate students, to build a supportive classroom environment and to handle questions from students in class in a helpful and non-threatening way. They also include basic classroom and laboratory safety, effective communication and appropriate student-teacher relationships.

Developing the skills of an effective teacher is essential for you to do your job but it also gives you the self confidence to better enjoy the teaching process. Developing and honing these skills is a life long endeavour, but it can be speeded up by using the various tips presented in this manual. Then you can modify these tips and implement them in your own unique style in your evolution as a teacher.

3. Facilitating Versus Teaching

A facilitator guides the students through a discovery or learning process, removes the obstacles and makes the subject matter relevant and easy to assimilate. Tough (1979) gives some good hints on facilitating. You will want to blend teaching and facilitating in your classes, moving smoothly from one to the other. Try the following to become more of a facilitator than an instructor.

- Create a supportive atmosphere, where students feel valued and comfortable to contribute to the learning process.
- Make the learning practical where possible.
- Encourage active participation in the learning process and provide plenty of evaluative feedback to students.
- Sit rather than stand; or sit as part of the group whenever possible to create a sense of equality and participation; stand when you need to regain control of the situation.
- When possible ask rather than tell to allow students to do the work and share experiences.
- Ask class members if they wish to participate in an exercise or role play; avoid commanding; find ways to make everyone want to participate.
- Find ways to ensure that talkative students don't do all the participating and quiet, shy students only sit back and watch.
- Wait for volunteers to answer questions; allow at least 30 seconds of silence before you rephrase the question; 30 seconds is a very long time when there is silence and students will usually say something to break that silence.
- Use an adult vocabulary; do not be condescending in speech, voice tone, body language or manner.
- Encourage students to take responsibility for their own learning.

III. THE TEACHING AND LEARNING ENVIRONMENT

1. Helping Students Think

The literature abounds with information on how to help students think. Some is embedded in psychological studies, other parts focus on philosophical or application perspectives. Schmidt and Davidson (1983) and Tiberius (1990) discuss ways to help students move to higher cognitive levels. Magnan (1989) presents an interesting discussion on stretching students' heads, not just stuffing them. Many of the tips below follow from these sources.

Create Thinking Opportunities for Students

- Create situations in the classroom and on assignments and exams that encourage students to evaluate, solve problems, make decisions, give causes and effects, give comparisons and examples, provide solutions.
- Give different, non-traditional assignments, quizzes and exams.
- Give assignments and conduct classes to foster learning for the different learning types.
- Ask students to read and then discuss material.
- When students ask a question to which they should know the answer, take time to ask questions to draw out the answer.
- Help students appreciate other perspectives by challenging traditional ways of thinking.
- Require students to provide evidence in support of their opinions.
- Support students to change their minds on the basis of rational arguments.
- Encourage students to rethink their decisions whenever conditions change and new information comes to light.
- Create assignments that entail development of alternative perspectives
- Include real world experiences in your courses.
- Encourage probabilistic statements.

Show Students How to Think

- Guide students through stages of investigation.
- Show them how to apply knowledge, decide what other knowledge is necessary and figure out how to access this knowledge.
- Poverty of ideas is more serious than faulty reasoning; stimulate students to generate ideas and explore all possibilities, to examine issues from all perspectives.
- Model critical thinking by giving more than your own perspective in class and indicating when authorities differ in their opinions.
- Help students appreciate why authorities disagree.
- Help students appreciate that some points of view are logically stronger than others.
- Identify criteria for judging conflicting points of view; divide arguments into component parts; emphasize that not all evidence is equally valid; show how to weigh evidence.
- Discuss how to make decisions when information is uncertain.
- Explain reasoned judgement.
- Choices are often made between logic and intuition or left brain and right brain; provide students opportunities to use intuition then work through a logical evaluation process.

2. Helping Students Learn

The literature is also rich with information on how to help students learn. Much of it focuses on learning and teaching styles and types. There is also much information on practical ways

to embody the scientific information. This body of work emphasizes the importance of reducing information overload, providing a framework for new information, repeating critical concepts and information and getting the student involved in active learning.

What to Learn and Why

- Let students know what they are expected to learn (concepts, facts, applications).
- Let students know why they are expected to learn something (basic background principles, necessary for application in the work field).
- Let students know what is important as you are covering the material or discussing it; tell them to underline a concept or highlight a point; tell them to remember the basic principle as you will be building on it later.

A Framework for New Information

- Give students a framework within which to fit new facts and concepts.
- Relate new concepts and examples to earlier ones.
- Relate new learning directly to the student's life experiences.
- Use examples; particularly examples from the culture in which they live.

Repetition

- Use repetition to reinforce the amount of material that will be remembered and the length of time it will be retained.
- An idea presented once has a 10% chance of being remembered after 30 days, an idea intermittently reviewed six times has a 90% chance of being remembered in 30 days (Mehrabian 1981, Buzan 1983).
- Repetition need not be blatant; repeat an important concept as the framework in which to position new information or to follow with another important concept.
- Remind students from time to time about material they need to be familiar with to move forward into the next stage of the course material.

Effective Use of Learning Time

- Utilize the information provided in the student learning curve.
- Follow student highs and lows for information retention and processing.
- Do not give critical information in the first five minutes of class as students settle in.
- Provide important items for no more than twenty minutes, after which the student's attention will dwindle.
- Awaken the students with an activity or discussion, change the pace, write on the board if you were using overheads.
- Then move on to providing new information.
- Follow this again with a different teaching strategy such as an application, discussion, slides or a small quiz.
- End the session by stressing the important information.
- You can often get students' attention by mentioning that this is an important point for the quiz or exam.

Information Overload

- Limit the amount of information you present in any class or course.
- If students learn more if instructors incorporate active learning and if instructors are to concentrate on higher level thinking they have to cover less material.
- Students given a lower content level learn and retain the information better; less is more.
- Broad concepts are more easily understood and remembered and are more meaningful than facts or details.

- Stress concepts not facts, but provide the facts or tell students where to find them.
- Use additional recommended reading and study guides to get in the other material; tell students they can get more information on a topic from a given list of references.
- If you have recommended readings, ensure that students know that this is additional information and they will not be tested on the details and differs from required reading where they are expected to know the details.

Active Learning

- Provide opportunities for active learning.
- Get students involved in discussions, role playing, writing, applications in case studies.
- Encourage cooperation and team work.
- Present class materials in ways that encourage students to take notes.
- Provide the general outline for a class but let students fill in the details.
- Help students be creative; encourage creative inquiry.
- Providing lecture notes to students is important so they do not spend all their time writing, but students retain more if they are required to take some kind of notes.

Note Review

- Encourage students to review their notes.
- Ask them to remember when we talked about...you should have that in your notes, go back and look at it again in light of this new information.
- Help students learn to study effectively, what to review and when to review it.
- Tell students to review concepts and principles in preparation for a class with new information or application of those principles.
- Remind students a week or two before an exam that it is time to go back and review their notes.

3. Motivating Students

Getting students motivated to learn, to come to class or to participate in class activities can be a time consuming and energy draining exercise. It can also be an exhilarating experience and well worth the effort. An important part of motivating students is intimately connected to creating a supportive classroom environment; this is detailed in the following section.

Get Students Interested or Curious

- Capitalize on the intrinsic motivation related to student desires to learn, to discover and to comprehend.
- Arouse in your students a feeling of interest or curiosity in the subject material.
- Present some little known fact about or application of the material to be presented.
- Bring in some humorous aspect of the subject material.
- Introduce the course and class topics in an interesting, informative and challenging way.
- Build a supportive classroom environment that encourages and provides opportunities for learning.

Make the Material Relevant

- Make the material relevant to the students.
- Capitalize on students existing needs.
- Show them why they need the subject material in their lives and in their careers.
- Ask students to give situations in which to use the proposed knowledge.
- Give your own examples of how the information can be used.

- Cite cases of success in life from applying the proposed lesson.
- Tell students why the course is important, how it fits into the program, what they will be able to do at the end.
- Tell them how it will prove useful in their search for a job, in a job interview or in their career development.

4. Building a Supportive Classroom Environment

A supportive classroom environment is one in which students and instructor feel comfortable and accepted. They are able to share ideas, knowing they will not be ridiculed.

Create a Positive Emotional Climate

- Create a positive emotional climate where students feel respected, accepted and in which they will want and be able to participate and learn.
- Listen carefully and convey a positive regard for the students.
- Do not interrupt when a student is speaking; unless they ramble, in which case you can do so politely but firmly to keep the rest of the class involved.
- Model acceptance of different views.
- Don't be defensive if students challenge your views and concepts.
- Never humiliate a student, especially in front of the class.
- Avoid interacting with a student in a way that embarrasses, calls attention to, or creates discomfort for the student.
- Avoid sarcasm and teasing; not all students will interpret this as humour.
- Never exhibit or comment on a student's work without permission.
- Treat your students as adults.
- Encourage students to offer their opinions and to ask questions.
- Establish good rapport with students.
- Help students develop trust in your teaching effectiveness; help them see that what they learn will take them where they need to go in other courses and in their career.
- Help students overcome anxiety as an obstacle to learning.
- Do not tolerate disparaging remarks based on gender, race, ableness, national origin or religion or racist or sexist behaviour by students.
- Do not allow students to mock others for their responses to your questions or on their participation during discussions.
- Present material at a challenging level and pace that communicates respect for your students and their abilities.
- Use a variety of creative teaching styles to avoid monotony and keep student interest and learning high.
- Model enthusiasm for the course content and for learning itself.
- Give responsibility for learning to the students; allow them to select their learning experiences and methods of evaluation.
- Promote feelings of autonomy and personal involvement.
- Make students active participants in learning.
- Hold high but realistic expectations of your students.
- Help students set achievable goals.
- Tell them what they need to succeed in your course.
- Emphasize mastery and learning rather than grades.
- Believe in your students by assessing their abilities and interests in a realistic manner.
- Give them chances to develop and hone their abilities.
- View them through the lens of time.

- Be genuine or “real” with them.
- Take time during teachable moments and learn to recognize those moments.

Include all Students

- Be sure to include all students in eye contact, questions and activities.
- Do not ignore those who are quiet or appear less able.
- Be aware of and manage your own prejudices if there is someone you respond less positively to than to others due to behaviour, dress, sex, age or appearance.
- As much as we may believe we are not prejudiced, racial, ethnic or personal characteristics and habits can cause us to react subconsciously in ways students find disturbing; this may result in inadvertently not calling on them to answer questions or contribute to the discussion or not maintaining eye contact with them.

Learn Student Names and Backgrounds

- Get to know the students and let them get to know you.
- Learn students' names quickly.
- In large classes ask students to sit in the same seats the first few weeks and use a seating chart.
- Take a photograph of students and have them write their names below their picture.
- Ask students to introduce themselves in the first class and jot down things about them such as physical features that will help you remember who they are.
- Learn something about each student and acknowledge personal information they share such as where they were born, what their interests are.
- Be willing to share parts of yourself and your life with students; in the classroom, you can speak occasionally from personal experience but use discretion, you can give too much personal information needlessly.
- Attempt to uncover personal situations or handicaps that could interfere with student learning and class attendance.
- Irregular work schedules, child care arrangements and bus schedules can wreak havoc with a student's class attendance.

Provide Nonverbal Encouragement

- Provide nonverbal encouragement to create a secure, positive, reassuring atmosphere.
- Maintain eye contact with all students.
- Move around the classroom, be naturally animated and expressive in your presentation.
- Control mannerisms that show a lack of self confidence such as hiding behind a podium.
- Smile and laugh in class where appropriate and encourage this in the students.

Provide Specific Positive Reinforcement

- Compliment students on something done well; the key is specificity; there is a lack of genuineness if you compliment profusely and too liberally.
- Talk to students when high risk patterns such as missed assignments, chronic absences and tardiness occur.
- If students all did poorly on an exam or assignment, let them know that they can still do well overall in the course.
- Reward success openly and immediately.
- Structure learning so that students have some success early on in the course and balance that with challenge in your course material.
- Give immediate and comprehensive feedback.
- Be enthusiastic; voice quality is important; be energetic and bright in your inflection.

Avoid Negative Reinforcement

- Avoid negative reinforcement at all times.
- Do not give a killer test.
- Do not publicly ridicule wrong answers.
- Negative reinforcement makes the classroom negative, the subject's intrinsic appeal negative and the students negative.
- These negative feelings are often accompanied by fear.
- Students may work harder, but they will not realize learning is rewarding.

Provide Organization and Order

- Run a well organized class with respect for students' time.
- Never be late; perpetual tardiness can give students the impression that promptness is not important to you.
- Be in class for the allotted time; you can occasionally dismiss class early but don't make it a habit as students may get a message you are not prepared, not really interested in the course or do not consider class time important.
- Tell students you begin and end class on time and you also expect them to be on time.
- If students start to pack up books before you are finished class, smile and tell them you are not finished; if they persist strongly remind them that this is disruptive to the students listening to the end of class and that they should refrain from the behaviour in the future.
- Recognize inattentive behaviour such as shuffling, glances at other students or watches, stacking books before class ends; note posture, attitude and lack of eye contact.
- Start the class on time even if everyone is not there; not doing so punishes the prompt and conscientious.
- Deal with all class distractions immediately; tell students at the beginning of the class that you will not allow them to disrupt the learning process of others.
- If disruptions occur tell students gently the first time by reminding them of the importance of a positive learning environment; be more firm if the behaviour persists; speak to individual students after class if needed.

Create a Comfortable Physical Environment

- Create a physically comfortable environment as much as possible.
- Check the room temperature to be sure it is at a generally comfortable level; look for cues from students such as rolled up sleeves or coats on throughout the class period.
- Try to arrange seats in a comfortable manner.
- Know what is distracting to students and what physical features of a room can affect their learning such as traffic and loud talking near a door or windows, bright sunlight coming into a window or a noisy air system.
- Avoid having students facing windows or doors which can be distracting during a class.
- In discussion sessions, adjust the seating arrangement if possible, so that students face each other rather than the instructor.
- Instruct students to turn off all pagers and cell phones.

5. Handling Questions from Students in Class

Ordinary Questions

- Ordinary questions are relevant to the topic being pursued and aimed at clarification, elaboration or asking for additional information; they should be answered concisely as they occur.

- Ordinary questions may be asked because students can't hear you, particularly if the questioner sits near the back of the room or the equipment; they should be answered concisely as they occur.
- If you are in a large classroom or a student speaks softly, repeat the question or, better yet ask the students to speak loud enough to include everyone.
- If only one or two students have difficulty hearing, ask them to sit closer to the front of the classroom.
- If many students have difficulty, check out the possibility of using a different classroom or a portable microphone.

Special Questions

- Irrelevant questions that do not relate to the topic may be an indication of boredom or of a student who is having difficulty.
- If the question relates to a student's boredom, state politely that it is not appropriate and proceed but use it as an indication that other students may be bored.
- If the question relates to student difficulty, use active listening and questioning techniques to discover the actual problem.
- The "got'cha" question is used when you have inadvertently contradicted yourself and a student decides to nail you for it; the best response is to admit your mistake, if there was one, correct it if you can, then move on.
- The "got'cha" question may also be used as a practical joke; as such, they are usually best handled by responding to the humour of the situation with a smile or comment, then getting quickly back on track.
- If the student is asking a question to achieve something else, such as attempting to disagree with a concept that already has been accepted by everyone else, try rephrasing the question.
- Some questions indicate the student has missed one or more major points and is lost; if you stop to bring that person up to date you may lose the others; but to continue may cause you to completely lose the one person; if you decide to move on, be sure to agree to help the confused person later.
- Many questions are pseudo-questions where the questioner is not seeking an answer but offering an opinion; to avoid risking rejection, it is easier to frame the comment as a question such as don't you think that..., isn't it true that..., have you done anything about... or is it fair to say that you...
- Respond to pseudo-questions by clarifying what you said, asking if the clarification is sufficient and if the questioner has further comments.

6. Classroom and Laboratory Safety

As the instructor assigned to a classroom or laboratory, you are the formal authority and it is your responsibility to be aware of and enforce all safety rules and regulations. Being prepared for a potential emergency is the most effective means of ensuring you will handle it appropriately.

Emergency Information

- Know where the emergency exits and best evacuation routes are.
- Know where the closest first aid kit is and be prepared with simple first aid procedures.
- Know where the nearest telephone is and in an emergency who to contact.
- Report malfunctioning equipment even if it is only a leaking tap.
- Report problems to the relevant administrative staff.

- Observe no smoking rules and regulations.
- If any student has a specific medical condition that you may need to react to, get written information on what to do from the student, and if possible the student's physician; make sure the information is signed and dated to avoid legal implications.
- Think through possible emergency situations and what you would do if you encountered them; check your plans with an administrator who can advise you.
- Consider taking short courses or reading manuals on how to deal with out of control individuals who may threaten the safety of you and your students.

Laboratory Safety Guidelines

- Armour (1989) has developed specific guidelines for the laboratory for both instructors and students.
- Wear safety glasses if required; as a general rule all labs using chemicals require them.
- Do not consume food and drink.
- Do not have bare or stockinged feet, even if it is tempting to take off shoes when standing for long periods.
- Do not engage in any horseplay and pranks, they are potentially dangerous.
- Confine long hair and clothing when working with lab equipment and chemicals.
- Know the location of fire extinguishers, safety showers and eyewash stations and know how to use them; point them out to the students and explain how to use them.
- Wash hands before leaving the lab.
- Develop a healthy respect for chemicals.
- Be alert for unsafe practices and techniques.

Fire Safety

- In the event of a fire, pull the fire alarm and call the campus emergency number to give required information.
- Direct your students to exit the building by the shortest, safest route.
- Give assistance to handicapped persons.
- Close the door after everyone has left, but do not lock it.
- Do not return to the building until authorized to do so.

7. Teacher-Student Relationships

Teaching involves a relationship between teacher and student. Teaching requires mutual confidence between student and teacher; for the activity to be effective, each must have trust in the general credibility and veracity of the other. An aspect of this relationship that often concerns new instructors, is how friendly can you be. There are no firm rules from the experts. The best advice is to use your own judgement and common sense and keep in mind the following guidelines.

Treat all Students Equally

- Treat all students equally in what you say and what you do.
- You will often have your favorite student, but this favoritism must not be displayed in the classroom or in any aspect of the course.
- You might become a mentor to a favorite student which will change the general classroom relationship you had previously; see the section on mentoring for further information.
- Ask all students to address you in the same manner; if some students use your first name and other students use your title (Dr. or professor), favouritism may be perceived.

- If you do not like or find a specific student annoying or disruptive, keep professional in your approach to that student; you can discuss the annoying or disruptive behaviour with the student outside of the classroom.

Socializing with Students

- Any dating relationship with a student should be completely avoided until after the course is completed.
- In making decisions about socializing with students, keep in mind that you can not be perceived to be giving any student an unfair advantage over other students.

8. Effective Communication

Communication is an integral part of teaching and learning and can do much to affect the classroom environment. Effective communication skills for teaching and a strong positive emotional climate include the following.

Your Voice

- Speak clearly without monotone.
- Practice varying the tone of your voice for emphasis or to denote specific cues.
- Speak at an appropriate pace, not too quickly and not too slowly.
- Speak at an appropriate volume for the classroom; ask students at the back of the classroom if they can hear you, if not speak up or use a portable microphone.
- If using a microphone make sure it works properly and is devoid of background noises.
- Enunciate clearly.
- Tape your voice to determine annoying habits like raising your voice or fading in volume at the end of a sentence.

What You Say

- Think before you talk; say what you mean.
- Don't ramble.
- Be brief and to the point when giving directions.
- Use a clear, concise vocabulary.
- Avoid unnecessary jargon and acronyms; if you must use them, make sure they are explained to the class.
- Learn the proper pronunciations of words; ask others to point out mispronunciations; for example words like laboratory can be pronounced two ways, find out which is common or preferable.
- If you are using a word that is critical to a concept or procedure, write it on the chalkboard or overhead.
- Avoid ahs, ums and other annoying fillers.

Listen

- Listen actively and perceive the impact of your words and your behaviour.
- If you have an accent or the language you are teaching in is not your first language, talk to your students before and after class to provide the opportunity for you to practice your communication skills and for the students to get to know you better and become more accustomed to your way of speaking or give you helpful suggestions on what is not effective communication for them.

IV. LEARNING AND TEACHING STYLES

1. Learning Styles

There is a wealth of literature on learning styles and theories of cognitive development. Students receive and process information and learn in very different ways. Researchers have proposed various hypotheses, models and theories about learning, intellectual development and information processing. Knowledge about learning styles can help instructors become more effective in their classroom endeavours and realize that no one teaching method suits all learners. Understanding learning styles can help instructors develop their own effective teaching style. The Teaching Professor (October 1995) has an interesting work style survey you can give to your students to help them and you understand their learning styles. Pintrich (1988) suggests it may be more relevant to focus on the cognitive processes students actually use when trying to learn, remember and understand course material, than to use personality or style variables.

Perry (1970, 1984) studied intellectual development of college students, formulating a scheme that begins with dualism, either-or-thinking, a belief that there are right and wrong answers and knowledge consists of facts to be memorized, a set of truths. Dualism gives way to multiplicity, the recognition of differing perspectives. Individuals then come to relativity, an understanding that everything is relative but not equally valid, and they begin to reason, evaluate and think. Knowledge is viewed as qualitative, depending on contexts. In final stages, commitments evolve in the face of relativism and are explored and confirmed.

Other scholars have elaborated on the work of Perry. Erickson and Strommer (1991) indicate that students in the first stages described by Perry become uneasy when they are asked to think independently, draw their own conclusions or state their own points of view. They are also uneasy when authorities disagree. Belenky et al. (1986) and Tiberius (1990) call Perry's final stages constructed knowledge, integrating knowledge learned from self experience and self reflection

People perceive reality differently; some sense and feel, others think things through. Then processing occurs either by doing or watching. Type 1 learners are primarily interested in personal meaning; give them a reason. Type 2 learners are primarily interested in facts; give them the facts. Type 3 learners are primarily interested in how things work; let them try. Type 4 learners are primarily interested in self discovery; let them teach themselves and others.

Research has shown that teaching and learning are profoundly influenced by the psychological type of the instructor and the student. Among the several systems for analyzing psychological type, the Meyers-Briggs Type Indicator (MBTI) is considered very sensitive and is extensively applied. The MBTI is based on four separate indices which direct the use of perception and judgement; the four indices yield sixteen possible combination types. The preferences affect not only what people attend to in any given situation, but also how they draw conclusions about what they perceive (York 1990).

2. Meyers-Briggs Learning Types

Extroversion-Introversion identifies the direction of overall energy flow. Energy flows toward the outer world for extroverts and toward the inner world for introverts. Sensation and

intuition identify the means of perception. Sensates take in information through the five senses; intuitives take it in from the sixth sense, intuition. Thinking and feeling identify the means of judging. Thinking types depend on reason for judgements; feeling types depend on empathy. Judgement and perception identify whether the principal function is judging (thinking or feeling) or perceiving (sensation or intuition).

Extroverts

Extroverts work best in groups, need to talk to develop their ideas, write with little planning and benefit from discussing their drafts. They develop ideas best when writing quickly, impulsively and uncritically. They are oriented toward external world of other people and things.

Introverts

Introverts work best if alone and if given advance notice and time for reflection. Much of their first draft of a paper is written mentally. They pause frequently to plan and can get bogged down in planning. They are reluctant to ask for advice and are oriented toward the inner world of ideas and feelings.

Sensate Types

Sensates appreciate audio-visual aids and demonstrations and benefit from having ideas and facts repeated. They do not think symbolically and need time to understand and answer questions. They find memorizing easy and are slow to generalize from examples to concepts or from reading material to real life. They need detailed factual information, presented in a step-by-step fashion and can become overwhelmed by too much data. Their first draft tends to be a compilation of facts with little concern for connection with a central theme.

Thinking Types

Thinkers prefer objectivity, logical order, patterns and outlines and appreciate structured courses with clear goals. They like to categorize and analyze according to basic principles, and organize into clear structures with a logical rationale. They are dogmatic with a gift for incisive critical analysis, logical organization, and brevity and focus on content clarity rather than audience appeal. Their drafts are often dry, lacking a sense of personal relationship to the subject.

Feeling Types

Feelers prefer working on group projects, emphasize human value and establishing personal friendships and make decisions on beliefs and likes. Their social life often interferes with their studies. They focus on values rather than intellectual content and write from the heart. Their structure follows thoughts and feelings, not a logical outline.

Judging Types

Judgers work efficiently according to schedules and hand in assignments on time. They prefer material presented in an orderly way and are disturbed by last minute information. They limit topics at once, set manageable goals, stick to a plan rigidly and make stylistic and organizational decisions quickly without reflection.

Perceiving Types

Perceivers start too late on assignments, let their work pile up and have to cram. They are open and effective in identifying issues, favor flexibility and spontaneity, need deadlines to get finished, like broad topics and have trouble focusing. Their first draft contains excessive

material and ideas. They tend to be perfectionists and to procrastinate.

3. Kolb Learning Styles

Kolb (1983, 1984) described his view of the learning process as the experiential learning model which he saw as an integration of several lines of research on both cognitive development and cognitive style. He viewed learning as a four stage model where concrete experience is the basis for observation and reflection, which is then used to formulate abstract concepts and generalizations which can be tested in new situations. His descriptors follow.

Convergers

Converger's dominant learning abilities are abstract conceptualization and active experimentation. The converger's greatest strength is the practical application of ideas. Convergers seem to do best in situations such as conventional intelligence tests, in which there is a single correct answer or solution to a problem. The converger's knowledge is organized in such a way that through hypothetical-deductive reasoning the converger can focus the knowledge on specific problems. Research on this style of learning shows that convergers are relatively unemotional, preferring to deal with things rather than people. They tend to have narrow technical interests, and often specialize in the physical sciences. This learning style is characteristic of many engineers.

Divergers

Divergers have the opposite learning strengths of the convergers. The diverger is best at concrete experience and reflective observation. The diverger's greatest strength is imaginative ability; they excel in viewing concrete situations from many perspectives. This style is labeled diverger because a person performs best in situations that call for generation of ideas, such as brainstorming. Divergers are interested in people and tend to be emotional as well as imaginative. They have broad cultural interests and often specialize in the arts. This style is characteristic of individuals with humanities and liberal arts backgrounds. Counselors, organizational development specialists, and personnel managers tend to be characteristic of this style.

Assimilators

The dominant learning abilities of assimilators are abstract conceptualization and reflective observation. The assimilator's greatest strength is in the ability to create theoretical models; they excel in inductive reasoning and in assimilating disparate observations into an integrated explanation. Like the converger, the assimilator is less interested in people than in abstract concepts, but unlike the converger, the assimilator is not much concerned with the practical use of theories. For the assimilator it is more important that the theory be logically sound and precise. When a theory or plan does not fit the facts, this person is likely to disregard or re-examine the facts. As a result, this learning style is more characteristic of the basic sciences and mathematics than the applied sciences. In organizations, the assimilator is found most often in research and planning departments.

Accommodators

Accommodators have the opposite learning strengths of the assimilator. The accommodator is best at concrete experience and active experimentation. The accommodator's greatest strength is doing things, carrying out plans and experiments, and being involved in new experiences. Accommodators tend to be more of a risk taker than people characterized by

any of the other three learning styles. Accommodators tend to excel in those situations in which they must adapt to immediate circumstances. When a theory or plan does not fit the facts, accommodators will most likely discard the plan or theory. The accommodator tends to solve problems in an intuitive trial and error manner, relying heavily on others for information, rather than his/her own analytic ability. The accommodator is usually at ease with others, but is sometimes seen as impatient or pushy. Education is often technical or practical, such as business administration. In organizations, accommodators are found in action oriented jobs such as marketing and sales.

4. Teaching Styles

There is much literature on teaching styles and theories about which better facilitate student learning. Attention to student learning styles can help you modify and vary your teaching style and understand why some students learn better than others.

Learning is an active, constructive process that is contextual; new knowledge is acquired in relation to previous knowledge and requires a framework to be meaningful. Instructors can use this knowledge and the theory behind it to focus their teaching to the appropriate phases of their student's intellectual development. Students in introductory courses need more structure, right answers and clear guidelines, with less open ended discussions. Activities can be introduced to help the student move through the stages Perry describes to higher levels of cognitive development where they see beyond the right answer.

Each teacher needs to find their unique teaching style or styles. This is an ongoing evolution and changes with the situation, age and experience. Like a garden, it is never finished, but in some stage of development, with new introductions, removals, fine tuning and not so fine tuning. It is a lifetime work.

Developing your own Teaching Style

- It is important to develop your own style.
- There are many defined teaching styles and many tools or structures to accommodate each style.
- Find comfort in the knowledge that teaching award winners use so many diverse models that no one model for effective teaching can be deduced.
- A mistake a new instructor often makes is to completely follow the style of a favorite teacher.
- Successful teachers have a style embedded in their own personality; it is unique; what worked for them may not work for you.
- Find out what comes naturally to you and feels comfortable, and then build on that as a style base.
- Continue to expand your horizons by reading teaching tips, talking with and watching other instructors.
- Other instructors can serve as both good and bad models.
- Don't be afraid to experiment.
- Try one or two new things to spice up a typical class and see how your students respond.
- Developing a teaching style is a career long challenge, tempered by how you change on both personal and professional levels.
- Don't try to match your teaching methods to students' learning styles.

V. INSTRUCTIONAL STRATEGIES

Instructional strategies focus on the ways in which we teach and the methods we employ. They are built around a good understanding of the learning process and student needs. Instructional strategies cover many scales, from developing a complete course with its detailed lectures, laboratories and exams to determining the best methods to cover a specific, small topic in one class.

1. Lectures

A lecture is a teaching method in which information is presented to the students by the instructor. Lectures usually imply a period of uninterrupted presentation giving information to a specific audience. Lectures can fill an entire class or be included with other instructional strategies to best meet the learning objectives. Eble (1980, 1988), Andrews (1982) and Timpson and Tobin (1982) present numerous tips for preparing and delivering effective lectures. These tips are embodied in the sections below.

When Lecturing is Effective

- The basic instructional purpose is to disseminate information.
- The information is not readily available elsewhere.
- The information must be organized and presented in a particular way.
- Introducing content or providing directions for learning tasks that will be developed in another way are necessary.

When Lecturing is Not Effective

- The instructional purpose involves forms of learning other than knowledge acquisition.
- The instructional objective involves higher cognitive levels, such as analysis, synthesis and evaluation.
- Learning involves initiation or changing of attitudes, values, beliefs and behaviours.
- The information acquired must be remembered for a long time.
- The information is abstract or detailed.
- Student participation and involvement is essential to achieve instructional objectives.

Before the Lecture

- Before class hand out material that is not easy to present in lecture such as an outline, difficult material, a glossary of key terms and concepts and complex drawings or equations.
- Suggest pre or post class readings to better prepare the class to learn from lectures.
- When planning the lecture ask yourself: what are the lecture objectives, what is the lecture to accomplish, what should the students know and be able to do as a result of this lecture, how should the students feel after the lecture.
- Organize your lecture by outlining information in a way that makes sense to you or considering other organizational methods such as chronological order, cause effect, problem solutions, spatial organization, simple to complex, specifics to generalities or developing concepts, determining internal structure or relationships of concepts.

To Begin the Lecture

- Capture attention at the beginning of the lecture and provoke student curiosity.
- Present a case which will be solved with new information.

- Introduce puzzling facts to be understood later.
- State a strong generalization which contradicts common thought.
- Read a powerful quote.
- Make reference to recent news or a movie.
- State a series of rhetorical questions.
- Pose a problem which will be answered by the end of the lecture.
- Give an example of the phenomenon to be discussed.
- Tell a personal anecdote.
- Create a demonstration which illustrates the topic or puzzles the students.
- Give the lecture a title.

Deliver the Lecture

- Use an appropriate vocabulary level.
- Use a variety of examples, figures and graphs to illustrate a concept.
- Help students focus on what they should be learning by stating the learning goal or objective or relate the learning goal to something relevant to them.
- Use signposts, words and phrases to guide students to organization and major or minor points; the key point is..., we are going to discuss four types of..., the first advantage is....
- Explain how concepts in a lecture fit together and flow with transition phrases such as, now that we know this principle..., with these explanations in mind, let's turn to..., in contrast to X theory, consider the following....
- Include no more than three major points and show how points are connected to each other and past material.
- State at least one meaningful example for each major point.
- Maintain eye contact.
- Avoid excessive reading of your notes.
- Vary stimuli and mood by movement, voice or pace and speak precisely and audibly.
- Do not lecture uninterruptedly for more than 20 minutes.
- Intersperse short lecture periods with more active learning strategies.
- Leave time for questions and mental breathers.
- Be enthusiastic; enthusiasm may be the central ingredient in motivating listeners and the effect on student satisfaction and on measures of student learning cannot be overemphasized (Hart 1973).
- Summarize the lecture by restating main points, giving a new example, asking for main points or showing where you are now.
- Refer to the next presentation.
- End with implications, descriptions of the effects or applications.

Removing Effective Lecture Barriers

- Osterman (1984) provides a good summary of barriers to effective lecturing.
- Presenting too much information leads to information overload and student frustration.
- Presenting insufficient information leads to information underload and bored students.
- Do not present the information in a too factual or inferential way, but extend knowledge through intelligently conceived hypotheses.
- Do not present information in a too concrete or too abstract way; try combining the two.
- Do not present information too specifically; move from general to specific and back.
- Do not present information too rapidly or too slowly; most studies indicate normal conversation delivery is best.
- Information can be presented too soon or too late; start with the familiar and move into the unknown.
- Information can be presented with too much or too little intensity; aim for impact without

- Lecture in a stimulating and interesting way to keep students' attention.

2. Laboratories

Laboratories provide an opportunity for students to have a hands on approach to learning. Laboratories can fill an entire class or be included with other instructional strategies to best meet the learning objectives.

Preparing Yourself

- Be well prepared to ensure that your laboratory class will run smoothly.
- Know where equipment and supplies are stored to avoid time spent during the session trying to obtain these items.
- Have necessary items out before the class begins.
- Know where the first aid kit is, first aid rules, emergency procedures and what potential emergencies could arise and how you would handle them.
- Know the purpose of the lab and what students are to learn.
- If you are not familiar with the procedures or it has been a long time since you have performed them, do the exercise yourself to become familiar with potential problems.
- Do the same data analyses and computations that students will do to offer advice or answer questions.
- Grading is easier if you know where to check for obvious errors.
- Decide on an appropriate introduction such as a demonstration to give the relevant background material.
- Prepare handouts if required.
- Explain any deviations from the regular report format.
- Consider how to handle unprepared students without doing the work for them.

Preparing the Students

- Give students ground rules and familiarize them with equipment at the first session.
- Be friendly but firm, to ensure students realize the structure, rules and regulations.
- Explain the function of the laboratory and how it ties in with other parts of their course.
- Tell students what kind of preparation you expect prior to laboratory sessions such as reading the lab manual and being mentally organized for the work to be done.
- Indicate what kind of reports you expect, format, due dates, marking schemes and penalties for late reports.
- Show students how to handle data, do calculations, use graphs and diagrams.
- A sample report is effective to ensure students will follow instructions and minimizes the time you will have to spend with individual students later.
- Explain how you will handle attendance and policy for make up labs, if any.
- Encourage collaboration on written reports; students will often work together anyway and encouraging their collaboration with proper acknowledgements helps you to openly handle the situation.
- Talk to students about referencing material used to compile laboratory reports, such as lab reports from previous years.
- Get to know the students by name as soon as possible.

Conducting the Laboratory

- Don't talk too long with your introduction, get the students active right from the beginning of the laboratory session.

- Get the lab started after introducing its purpose and demonstrating new equipment or difficult procedures and emphasizing specific safety precautions; gather students in a group to facilitate this introduction.
- Circulate among students while they are working to answer questions or give assistance.
- Don't wait for students to ask questions if it looks like they are confused; a simple how's it going or what stage are you at, is an effective way to check.
- Don't intimidate students by hovering and asking too many questions.
- Never give students the impression you think they asked a stupid question; if they should know the answer to the question, try to lead them through it by asking leading questions or suggesting where they might find the answer.
- Show your students respect and cooperation.
- Never give the impression students are stupid if they do not know simple procedures; even turning on the gas may be intimidating to some.
- Some students will be afraid to do anything in the lab without your approval; try to build their self confidence but discourage excessive questioning.
- Talk to each student or group to see how the work went.
- If results are not as expected, encourage students to speculate about reasons for the deviations from expected results.
- Make cleanliness a policy; everyone participating minimizes work and makes a pleasant working environment.
- Help lagging behind in getting their work done, by offering suggestions or finding what the barriers to completion are.
- At the end of the lab do a routine check; lock cabinets, check air, gas and steam taps, shut off lights, lock the door.

3. Discussions

Discussions give students the opportunity to become active in their learning, formulate principles and ideas in their own words and suggest and work with applications. Discussions help students become aware of and define problems implied in readings or lectures, increase student sensitivity to other perspectives and encourage them to actively process what they have learned. They promote student rapport, interdependence and motivation. Discussions are an ideal way to spice up a lecture or to energize a tired class. They can be used effectively with both small and large classes.

Students are difficult to involve in classroom discussion (Andrews 1982). They may seem passive and much in the receiving mode when it comes to learning at university. You may see them reclining at their desks, with folded arms and saying with the most eloquent body language, "okay, professor, do it unto me and make it as painless as possible" (The Teaching Professor, August September 1989).

The Ideal Discussion Session

- Each participant feels his or her ideas are worthy.
- Each feels some visceral excitement.
- It is an unrehearsed but well organized intellectual adventure that arrives somewhere.
- The governance is as if by invisible strings.

The Weak Discussion Session

- A few dominate, the rest are bored.
- Each has a sinking feeling.

- It is an adventure in waffling.
- The strings are only too obvious.

Structure

- Every discussion should have goals, structure and stated or unstated patterns.
- Variations occur in how loose or tight structure is, how explicit or subtle it is, and who establishes it.
- Some discussions go better with some rambling, while others need a tight structure.
- Structure is always the responsibility of the discussion leader, even when you want the students to take charge.
- Skills are required for guiding discussions, stimulating spontaneity when you want it and providing a clear track to follow when needed.
- Reducing structure is effective when you want students to learn how to select important ideas and to organize material in a personally meaningful way.
- Reduced structure is suited to complex levels of thought, like synthesis and evaluation.
- In a closely structured class, it is possible to cover more material.
- Structure is useful when information is straightforward and students need guidance to develop basic skills.
- The course can progress, with less structure and more student initiative as their mastery and readiness to deal with complex ideas increase.
- Structure should not be established in a way that blocks feedback about students and how they are reacting; this can easily happen when the instructor sets the learning goals and students agree but feel oppressed and unable to voice their concerns.
- Setting aside periods for open discussion of priorities and problems and other feedback devices such as midterm questionnaires, help avoid not getting timely feedback.
- Control is basically a two way street; if you and the students agree on what should be done, everyone will be working towards the same goal.
- The section on alternative instructional strategies provides further ideas to use in discussion sessions.
- Each group member can play more than one role in a discussion; some will perform task functions and others will perform maintenance functions.
- The discussion leader is responsible for facilitating the discussion by assigning or filling any of the roles if necessary.

Task Functions

- Task functions focus on accomplishing the goals or objectives of the discussion.
- The information and opinion giver offers facts, opinions, ideas, suggestions and relevant information.
- The information and opinion receiver asks for facts, opinions, ideas, suggestions and relevant information.
- The starter proposes goals and tasks to initiate action within the group.
- The direction giver develops plans on how to proceed and focuses attention on the task to be done.
- The summarizer pulls together related ideas or suggestions and restates and summarizes the main points discussed.
- The coordinator pulls ideas together and harmonizes activities of various subgroups and members.
- The diagnoser figures out sources of group difficulties and blocks to progress in accomplishing the group's goals.
- The energizer stimulates a higher quality of work from the group.
- The reality tester examines the practicality and workability of ideas, evaluates alternative

- The evaluator compares group decisions and accomplishments with group standards and goals.

Maintenance Functions

- Maintenance functions focus on keeping members amiably together.
- The encourager of participation warmly encourages everyone to participate, gives recognition for contributions, demonstrates acceptance and openness to the ideas of others and is friendly and responsive to group members.
- The harmonizer and compromiser persuades members to analyze constructively their differences in opinion, searches for common elements in conflicts and tries to reconcile differences.
- The tension reliever eases tensions and increases the enjoyment of group members by joking, suggesting breaks and proposing fun approaches to group work.
- The communication helper shows good communication skills and makes sure group members understand each other.
- The evaluator of emotional climate asks members how they feel about the way in which the group is working and about each other and shares his/her own feelings about both.
- The process observer watches the group's working process and uses observations to help examine group effectiveness.
- The standard setter expresses group standards and goals to make members aware of the direction of the work and the progress being made toward the goal and to get open acceptance of groups norms and procedures.
- The active listener listens and serves as an interested audience for other members, is receptive to others' ideas and goes along with the group when not in disagreement.
- The trust builder accepts and supports group members, reinforcing risk taking and encouraging individuality.
- The interpersonal problem solver promotes open discussion of conflicts between group members.

Discussion Leader Skills

- Desire to interact with students and recognize students as active participants in the learning process.
- Spontaneity, creativity, tolerance for the unpredictable.
- Willingness to let go of control of the classroom for a few moments.
- Ability to think on your feet.
- Ability to perform task and maintenance functions.
- Stage presence, energy, leadership, passion, intensity.
- A master of questions.
- Knows various types and categories of questions to elicit the desired response.
- Active listener.
- Sense of timing.
- Patience; ability to wait for student response.
- Peripheral vision and intuitiveness.
- Knows when to be light, when to be serious, when to confront, when to support.
- Ability to connect with the discussion participants.
- Knows how to jumpstart a discussion, keep it moving, end it well.
- Flexible, with new ideas if the first ones do not work.

Start the Discussion

- Work in groups of two to three then open up to the larger group.

- Let students speak with those sitting next to them so their response is not just their own and thus open to personal criticism.
- Let them write down ideas before you call on them, so they are not taken by surprise.
- Use a powerful quote or picture to get the students thinking.
- Brainstorm and write all the ideas on the board to give them all merit.
- Encourage participation and find ways to involve the nonparticipating (see section below on predictable problems).

To Focus the Discussion

- Set very specific learning goals and arrange them in a clear sequence or agenda.
- Ask convergent or factual questions; ones which elicit a correct answer or a standard of correctness.
- Emphasize frequently what you consider key points in the material.
- If a comment or question is off focus, respond to an aspect of it which furthers the goal of the discussion.
- When you set aside irrelevant contributions or questions, explain why in context of the discussion goals; when possible, indicate the question will be dealt with later on in the course, and remember to do so.
- Periodically, but particularly at the end of a class, summarize both the themes of the discussion and your own points, emphasizing the continuity with initial class goals.
- Hold one on one exchanges with students; avoid letting more than two or three students speak without your commenting; this heightens your visibility as a model of procedure.

To Open a Broad Discussion

- Ask divergent questions, ones with many equally valid answers which can take the discussion in any of several directions depending on how students react.
- Ask students to guess or estimate in answering some questions; this encourages discussion aimed at validating answers given and backing them up with reasoning.
- Ask questions you expect will stimulate differences of opinion among students.
- Define a broad theme around which to organize the discussion, a ballpark in which students can roam freely.
- Encourage student to student discussion by asking for reactions to ideas or by keeping silent until students talk to each other; this reduces the tendency to look toward authority or approval or disapproval after each comment and thus will produce free exchange.
- Use the brainstorming method in which you elicit a number of answers or ideas while suspending evaluative comments, either by yourself or by students, until a later time, to encourage the free flow of input.
- Divide the class into subgroups, in which each may take off in its own direction; pool and compare results later.
- Ask one or several students to sum up the most significant discussion points or ideas.

Solving Predictable Discussion Session Problems

- The slow start: expect a period of warm up; occasionally give a mini-exercise involving everyone, such as writing a postcard.
- The smart aleck: normally ignore; respond seriously to what lies behind the question boorishly phrased.
- The compulsive talker: let the class lay ground rules the first day of discussion, including not making speeches, each person contributing something (even if for the shy it is rapt attention), keeping quibbles to a minimum.
- I don't know responses: respect them.
- No response: try a smaller question they can answer and be interested in; lead back to

- General confusion: use the chalkboard; have an object to focus on (a piece of chalk has been used as a metaphor and model for a wide range of problems); break the subject into parts; go from the known into the unknown.
- Sullen student: engage him/her individually later.
- Incessant blocker: say the question will be answered in due course or offer temporary responses to questions like what is the meaning of life.

Convergent Questions

- Require students to recall previously learned information.
- Often use who, what, where.
- May require simple bits of information; e.g. what is the process by which plants fix atmospheric carbon.
- May require organizing facts into a logical relationship; e.g. what are the life stages of a typical insect.
- Useful verbs include define, memorize, repeat, record, list, recall, name, relate, tell, restate, discuss, describe, recognize, explain, express, identify, locate, report, review.

Divergent Questions

- Have no right or wrong answers.
- Encourage exploration of possibilities.
- Require concrete and abstract thinking; e.g. what might happen if Parliament passed a law preventing tobacco sales.

Probing Questions

- Series of questions which require students to go beyond the first question.
- Subsequent questions are formed on the basis of the student's response.
- Clarifying questions; e.g. what exactly do you mean, will you please rephrase your statement, would you elaborate on that point or what did you mean by that.
- Increasing critical awareness questions; e.g. what are you assuming, what are your reasons for thinking that, how many questions are we trying to answer, or how would an opponent of this point of view respond.
- Refocusing questions; e.g. if this is true, what are the implications for..., how does John's answer relate to..., can you relate this to... or let's analyze that.
- Prompting questions.
- Redirecting questions to another student; e.g. Mary, do you agree or Mary, can you elaborate on Joe's answer.

Higher Order Questions

- Require students to figure out answers, not remember them.
- Require generalizations of facts.
- Application: requires students to use a concept or principle in a context different from that in which it was learned; e.g. can you think of an example to fit that definition; useful verbs include apply, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, translate, use.
- Analysis: requires students to determine if ideas are similar, dissimilar, unrelated or contradictory; e.g. are there any similarities between...; useful verbs include analyze, appraise, calculate, compare, contrast, criticize, debate, diagram, differentiate, distinguish, experiment, inspect, question, relate, test.
- Synthesis: organizes ideas together in a new way; may require inductive or deductive reasoning; e.g. design a model to take these factors into consideration; useful verbs

- Deductive: e.g. if the temperature of the gas remains the same, but the gas is taken to 400 feet higher, what happens to the pressure of the gas and why would this happen.
- Inductive: e.g. we have examined qualities all these researchers have in common, what might we conclude about qualities necessary to be a successful scientist and why.
- Problem solving: requires students to use previously learned knowledge to solve a problem; students must see relationships between knowledge and the problem, diagnose materials, situations and environments, separate problems into components and relate parts to one another and the whole; these questions may generate unanticipated answers; e.g. suppose you grew up thinking dogs were bad, of the many dogs that you came in contact with, none bit you, how would you react towards dogs now, would the type or the size of the dog affect your reaction, explain the notion of prejudices using this example.
- Evaluation: requires judgement, value or choice based upon comparison of ideas or objects to established standards; e.g. which of the books contributed most to an understanding of the hunting and gathering society; useful verbs include assess, choose, estimate, evaluate, judge, rate, revise, score, select.

Affective Questions

- Elicit expressions of attitudes, values or feelings of the student; e.g. how do you feel about that, is that important to you.

Structuring Questions

- Related to the setting in which learning is occurring; e.g. are there any questions, any comments, would you repeat that, are you comfortable with that concept or are we ready to continue.

Stimulating Participation

- Andrews (1982) is a good reference on techniques to deal with students or a class that does not seem interested in participating.
- Ask questions pitched at the level most of the class can handle; success is a powerful encouragement to future participation.
- Vary the intellectual approach of your questions to provide opportunities for different types of students; include information questions, questions requiring deductions and those asking for hunches or intuitive leaps.
- Encourage students, by your questions, to use their own reactions, feelings, perceptions and life experiences as starting points for discussion.
- Learn to wait for a response; all too often valuable activity is cut off by getting anxious and moving on too quickly.
- Waiting signals that you really want participation, gives students time to digest the question, ensures that most students will be thinking during the pause and provides more openings for the student who needs more time to respond.
- Anxiety about being wrong or judged often inhibits participation.
- Ask questions that reduce anxiety and make differences among students more acceptable; ask open ended, divergent questions.
- Use brainstorming to elicit responses to a question and write them on the board before evaluating or moving on.
- Set aside class times when you deal only with basic questions to smoke out those that may be afraid to ask them; label this in a way that will save face for students such as designating it a review.

- When you are having trouble explaining an idea, open it up to the class and ask if anyone else can clarify; be a model of honesty about your own puzzlements.
- Break the habit of focusing on and expecting a comment from the instructor after every student input; following a student contribution, ask if anyone wants to comment or build on the idea.
- At the end of a class, invite a student to summarize or recap.
- Encourage student to student dialogue to prevent students in close proximity to the instructor speaking only to the instructor and too softly for the rest of the class to hear.
- Be hospitable to student questions or comments that surprise you; they may be signs you haven't understood student concerns or they have a novel perspective on an issue.
- Be clear and positive in responding to participation and comments.
- Students will watch what happens to those who speak up; when you must be critical, do it in a way that doesn't alienate.
- Avoid rapidly rewarding the fast thinker on a continuous basis; when the rapid thinker gives an answer, even if it is correct, ask if there are other answers or comments before pronouncing the first comment good.
- Rapid acceptance of a correct answer terminates thinking by students in mid thought.
- Avoid comments that do not help the students feel psychologically safe to participate, to try ideas or to be wrong as well as right.
- Avoid comments like, since I have explained this several times already, you all know..., obviously, you can..., now rephrase your answer the way you think I would say it....

Rewarding Student Contributions and Providing Feedback

- If students are rewarded for participating and given feedback to show how you are responding they are likely to participate more (adapted from Andrews 1982).
- Talk directly to and respond explicitly to the student making a contribution to the discussion; make eye contact; use the student's name if possible.
- Learn to listen carefully and show it.
- Look attentive.
- Test your understanding if necessary by a follow up question, by paraphrasing what the student has said or checking on an implication of his or her meaning.
- Ask a clarifying question; students may be making a different point or be right for different reasons.
- Give credibility to student input and make the intellectual work of the class a mixture of many people's ideas.
- Point out what was valuable in a contribution, don't just give a vague okay unless the point was obvious.
- If you see potential in the comment, draw the student out by asking for elaboration, more information or to apply the point differently.
- Build on or incorporate a student's point in a later one of your own.
- Relate the student's point of view to the material being discussed in class.
- Invite other students to add their reactions or reflections to build on the original point.
- Comment on the thinking process a student has used, as well as his/her conclusions.
- Restate complex or inaudible contributions for the class or ask the student to do so.
- Use nonverbal messages like posture and facial expression to reward student participation, regardless of what you say about the substance.
- Make eye contact with the student even if the response is incorrect; that's often when they need it the most.
- Be sensitive to student pride and fears; in putting forward ideas, students, and you too, put self esteem on the line.
- Be especially alert to avoid any tone of condescension or putdown.

- A student who is working on an idea, however elementary or naive, deserves respect and you will find this encourages others to take risks too.
- Leave your ego in your briefcase; looking good at a student's expense is the surest way to create a tense, anxious climate which inhibits participation.
- In your thinking and speaking, be sure to differentiate between what is incorrect and what you as an individual disagree with; never use the former to enforce the latter.
- If comments are unclear or confused, help students to express what they are really trying to say; show that you care about the original intent.
- When you disagree or correct a student, restate or paraphrase the point he/she made; this tests your understanding and also indicates that you take the point seriously.

4. Cooperative Learning

In cooperative or collaborative learning, cooperation takes precedence over competitiveness (Johnson 1990). Students can learn to respect the differences that exist among the members of any given group. It involves developing information because cooperation requires the use of interactive processes.

Cooperative Learning Structures

- Small group work in which students work on a project or discussion and hand in one assignment for each group.
- Learning cells or dyads in which students, individually or in pairs, read an assignment and develop questions dealing with the major concepts they have read.
- At the next class the students are randomly paired, in the same pairs as in the previous class or in different pairs, and take turns asking and answering the questions.

Setting up Cooperative Learning Situations

- Organize and be precise about the task, each person's role and the contribution of the activity to the course grade.
- Assess the contribution of each student rather than giving group grades.
- Let the group decide if they all made an equal contribution and deserve the same mark.
- Form heterogeneous groups based on prior achievement, race, age and sex.
- In general, groups of three to five are best.
- Group work is often more productive in class than out of class.
- Monitor to resolve academic and social problems.
- It is a mistake to assume that students have the necessary social and group skills for productive group work.
- Help students by discussing active listening skills and necessary group member roles.

5. Alternative Instructional Strategies

Alternative instructional strategies range from getting a full class discussion going to getting students into groups or teams and providing them with some specific guidelines and structure to deal with a problem or discussion topic; from bringing in guests and audio-visuals into the classroom to team teaching or working in a clinic setting. Some of the techniques are similar in nature, but rather than combine them, it is left to the reader to select the name or specifics they relate best to. Many of them have subtle small differences that are interesting in themselves. Vary the alternative instructional strategies so you do not get labeled as always preferring one or the other.

When to Use Alternative Instructional Strategies

- Used for short, spontaneous breaks in a class or for longer, more planned activities lasting a full class or developing over a full term.
- Particularly good for getting a discussion going or reviving one that is lagging.
- Excellent for dealing with challenging students; students who talk too much can be put in a position where they are unable to talk and students that usually do not speak up can be put in a comfortable position to be required to speak; students who are reluctant to participate can be put into positions that are very low demanding such as forming an outer circle.
- Numerous techniques allow the facilitator to split up students who always work together or provide opportunities to put students together with divergent thinking and ways of working or those with similar ways of thinking and working.
- Used to get new ideas and release individual potentials in thinking up ideas.
- Good to get students out of receiving mode in a lecture.
- Good for a quick wake up if students are getting sleepy or bored.
- Used any time greater group participation is desired.
- Many strategies can be used in combination with each other; you could start with brainstorming and then divide students into smaller groups to get more focused or to get more involvement from less talkative students or to quiet talkative students.
- Strategies can be used to get broad general information on a topic or to narrow the focus of a topic and get more detailed information and insight; the instructor must use the best strategy to accomplish these diverse goals.

Brainstorming

- Technique in creative thinking where class members think about a problem or topic and share all their ideas.
- Instructor begins by selecting suitable problems or questions or works with the class to develop the questions.
- Instructor explains the meaning and rules of brainstorming.
- Rules can include no critical judgements, criticism applied later or not at all, quantity of ideas is important, more ideas the better chance of good ones, free wheeling welcomed, wilder the idea the better since it's easier to tame them down than to pump them up, hitchhiking is legitimate, if you can improve on someone's idea so much the better.
- Students informally verbalize their ideas in no particular order.
- Recorder or instructor lists all ideas as presented on a board, flip chart or paper.
- Usually lasts only a few minutes.
- As a follow up, a list can be typed for the next meeting to give to members for a more structured discussion.
- Can be impractical with more than 20 persons; unless the instructor is very skilled at including all members of a large class.
- Can become disorganized without careful planning and skillful direction.
- Great to give a bit of a break in a lecture or to get some general ideas from the class.

Group Discussions

- Students are put into groups by the instructor or move into groups of their own choosing.
- Can involve a formal, planned grouping of students or a spontaneous, informal grouping.
- If the instructor wants students who normally do not sit together to work together, students can count off to a given number and all like numbers go into one group.
- At the beginning of a course the instructor may allow students to get into groups as they choose or tell them to work in groups of three or four as they sit in the class; this will be less intimidating than working with complete strangers.

- The instructor can plan groups ahead and post names on the board; this can be done for a variety of reasons such as to ensure that talkative students sit together or students who do not get along with each other do not have to work together.
- Requires a planned outline of questions if the groups are to work for an effective period of time.
- Instructor encourages and guides participation in each group by sitting in and helping those that do not seem to be working well together or by encouraging those that are doing well; a simple how is it going often give an indication of whether the instructor is needed or not.
- Usually preceded and followed by general class discussion.
- Groups can report back to the full class or hand in written points or answers to questions.
- Most practical with small groups of less than six students, but can include larger or smaller numbers with the appropriate planning of tasks.
- Can include the same groups over an extended period of time or mix groups to serve another function.
- Can be disorganized without careful planning and skillful direction from the instructor.
- Opportunity to pool and test ideas, experience and knowledge.
- Allows for total class participation through appropriately arranged small subgroups.

Buzz Groups

- Instructor sets small subgroups of four to six students and assigns questions to each.
- Groups usually discuss a topic or address questions for five to ten minutes.
- Subgroup leaders record ideas and report to the whole class.
- Thought must be given to the purpose and organization of the groups.
- Used when participation from each class member is desired.

Huddle Groups

- Pairs or triads discuss specific issues for two to three minutes.
- Groups are always kept very small and the discussion only lasts a few minutes.
- Students huddle without sitting down or getting comfortable.
- Good for a quick break in activity in a class.

Circle Response

- Three to six students are selected or volunteer to sit in the middle of a circle comprised of the rest of the class.
- Questions are posed to the students seated in the circle by the students outside the circle or by the instructor.
- Each student in the circle in turn expresses a response to the same question.
- Good to focus on listening and discussion skills.

Concentric Circles

- Students form a small circle within a larger circle.
- Size of the circles depends on the size of the class; normally the inner circle is one quarter to one third the size of the outer circle.
- In a very large class several concentric circle groups can be formed.
- The inner circle discusses a topic, the outer circle listens, then they reverse roles.
- Instructor develops questions or aspects of the topics to be discussed by the circles.
- Much thought and preparation are required in preparing questions and topics to ensure there are ample opportunities for expression of ideas and perspectives and that the questions are ones that stimulate discussion.

- Need sufficient space and movable chairs.
- May be intimidating to the students to know that they are being listened to.
- Used to get more response from a group slow in participating.
- Used to stimulate interest and provoke good discussion.

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- A spontaneous method where six people view their opinions for six minutes.
- Instructor defines topic of discussion.
- Instructor counts six students and allows six minutes for discussion by those six students.
- Students can either follow one after the other or more informally express their views without taking turns.
- Allow for group discussion or reassignment of six students.
- Can also ask the class to count off from one to six with all sixes part of the discussion group.
- The rest of the class forms an audience to listen to the discussion.
- The instructor may need to encourage some students who may feel intimidated if they are being listened to.
- Dominant personalities in the group can monopolize the discussion.
- Used to add spice and variety to methods of presentation.

Chain Reaction Forum

- Students are arranged in subgroups appropriate to the discussion topic.
- Subgroups discuss a topic or presentation and formulate questions to be asked of the instructor or the full class.
- The instructor goes around to each of the subgroups to answer their questions then can bring the questions and their answers back to the full class.
- Can be used to draw students out, find out what their concerns are about a particular topic or to find out what they have trouble understanding.

Listening Team

- Three to four students are designated to listen and raise questions after a presentation, lecture, guest speaker, video or other activity.
- A good way to involve non-participating students as this is a low risk activity.

Experience Discussion

- Instructor explains that experience and how students feel about a topic is the important focus.
- A small or large group discussion following a report on the main point of a book, article or life experience.
- Plan how the review is to be presented.
- Have open discussion on pertinent issues and points of view as experienced by the students.
- Ability of some students to relate to others and motivate thinking may be low.
- Students may be self conscious in discussing personal responses.
- Used to present a new point of view or an issue to stimulate thought and discussion.
- Good to determine and present different perspectives.

Finding Illustrative Quotations

- Students find one or two quotations from a text to read out loud and discuss in class.
- Used in class to make students more active learners.

- Allows opportunity to become comfortable with oral reading.
- Students are selected ahead of time, or in class.
- Quotations significant to them or that illustrate a major focus of a text or other reading are used.
- Quotations are discussed by the class.
- Provides insight and debate since student interpretations are not the same.
- If done in class, the instructor risks lack of response.
- If done ahead of time there is risk for off track and joke input.

Truth Statements

- Students develop critical skills and generate friendly rivalry among groups.
- Divide class into groups, each group decides upon three statements known to be true for a given topic.
- As students present truth statements, others raise questions or refute them.
- Students go to the library for research as a second step.
- Requires coordinating and facilitating by the instructor to keep discussion on track and all students involved.
- Used in class to get students involved in learning and to introduce a topic students may think they know a lot about.

Goals and Value Testing

- Students decide together on the primary value of a text reading or topic and how it fits with course goals.
- Divide class into groups or pairs and ask each to consider why a topic is part of the course, why a text section has been assigned for reading, why the topic is relevant at this time in the course.
- After five minutes, each group discusses their decisions with the full class.
- Requires coordinating and facilitating by the instructor to keep discussion on track and all students involved.
- Used in class for students to be active learners and to gain insight into student views of relevancy of topic to course.

Non-Structured Scene Setting

- Students get the discussion going through scene setting by the instructor.
- Instructor sets scene by showing slides without saying a word.
- Students discuss slides, themes, etc.
- Students can discuss slides one by one.
- Alternatively, the instructor plays a piece of music or a taped speech, shows a film clip or writes a quotation, a list of words or phrases on the board.
- The only directions are to make it clear the instructor will not participate in discussion until the last five minutes.
- Instructor can take notes and give feedback in another class.
- The class could drag, a few silent moments helps students realize they are in charge.
- Used in class to allow students to move discussion in their direction and for students to do most of the talking.

Picture Making

- Way of bringing out ideas by simple illustrations made by students on a chalk board or large chart paper.
- Very good for flow charts and models.
- Instructor and students select questions suitable to illustrate.

- Class divided into small groups.
- Each group is given a statement or problem to illustrate, after which they explain the picture to the full class.
- Followed with discussion.
- Instructor must clearly state the value of picture making and supply adequate materials.
- Used as a technique to stimulate interest, thinking and participation.

Question Generating

- Students learn to formulate and ask question in various settings.
- Students prepare questions on readings, films, etc. between classes, as they walk into class or during class.
- Students work individually or in groups.
- Questions given to the instructor who categorizes and asks them.
- Questions can be given to a student (a shy or inactive one) who randomly selects those for class discussion, or someone draws questions out of a hat.
- Instructor can randomly ask students to pose questions or go around the class.
- Instructor not always directly in control of the questions to be asked thus off track or joke questions can be posed.
- Used in classroom setting to actively involve students in the learning process.

Reaction Sheet

- A method of reacting to ideas that are controversial, are new or really hit home.
- Combine with other discussion methods.
- Instructor prepares topic and reaction sheets.
- Instructor distributes reaction sheets, telling students to write their reactions as they listen, watch or read.
- Group discussion follows.
- Topic should be somewhat controversial.
- Used as a way to get students to react.

Role Playing

- The spontaneous or planned acting out of a situation or incident by selected students.
- The class or instructor chooses a situation or problem, defines and assigns roles and general characteristics of each player.
- Scene is enacted.
- Class observes and discusses specific behaviour, underlying forces or emotional reactions.
- Roles can be assigned ahead of the role playing to give students an opportunity to get more detailed information and to rehearse or prepare for the enactment.
- Need a skilled instructor, so actors play roles seriously, without being self conscious.
- Used to develop clearer insights into student's feelings and backgrounds which facilitate or block good human relations.

Socratic Method

- A dialogue in which the instructor asks leading questions of the class.
- Alternatively the class members may also ask questions in response to questions from other students.
- Questions are as important as answers.
- Instructor prepares topic, then leads class through the discussion by asking leading questions.
- Instructor carries responsibility for discussion progression and must be well prepared

- Used to vary the routine of a regular class.
- Used when class participation is desired.

Debates

- A pro and con discussion of a controversial issue to convince an audience.
- Used when discussing controversial issues with definite sides, to bring differences out in a friendly way.
- Divide class into pros and cons or have students select their side.
- Each speaker is limited to a predetermined time followed by a rebuttal.
- Formal debate rules can be followed or a flexible modification implemented.
- If assigned spontaneously, students pick a side without time to think or research.
- In spontaneous debates, give students the opportunity to change sides.
- Students may not be objective towards the subject.
- More outgoing students can dominate.
- Can become a show of opponent attacking.
- In planned debates, sides can be more evenly matched and students have more time to bring in higher quality ideas.

Panels

- A conversational discussion among a selected group with a leader, in front of an audience that joins in later.
- Instructor plans with four to eight panel members.
- Panel discusses informally without set speeches.
- Instructor opens the discussion to the group and summarizes.
- Can get off track.
- Personalities can overshadow discussion content.
- A vocal speaker can monopolize.
- Used as a technique to stimulate interest and thinking, to provoke better discussion.

Case Studies

- Actual account of an incident or problem presented to the class.
- Outcome may or may not be included.
- Instructor documents the case study, altering names and places if required, then presents the case study to the class.
- Generally followed by discussion from the class.
- Alternatively, a case may be studied by students then presented to their classmates.
- Require additional work by the instructor to ensure selected case studies are good examples of what is being represented.
- May be difficult to find examples and time consuming to develop if the details are required.
- Smaller less difficult to prepare case studies can also be used when less actual details is required.
- Used when a specific example best illustrates a topic.
- Used to supplement lectures, synthesize ideas and apply theory to practical problems.
- Used as a hands on assignment if answers are withheld from the students.

Clinic

- Diagnosis, analysis and solving of problems by a large group.
- Subgroups can work through the problem, or parts of the problem, then report to the larger group.

- Instructor selects the topic and the actual methods to be used.
- Can be done in a short class period or as a series of activities over a longer period of time such as a term.

Symposium

- The topic is divided into various parts; each part presented by a well informed person in a brief, concise report.
- Instructor plans ahead of the class time.
- Participants are introduced and give reports.
- The class questions the speakers.
- Instructor summarizes.
- Can get off track.
- Speaker personalities can overshadow the content.
- A vocal speaker can monopolize.
- Used when specific information is desired.

Colloquium

- Advanced projects are planned and evaluated as they progress.
- Students usually work over a long period of time on the projects, such as a full term or part of a term.

Committee Work and Reports

- Students work in groups to develop interpersonal and organizational skills and develop good group dynamics.
- Instructor organizes topic into components, groups students, gives groups instructions on how to approach their task, where to seek information and how to carry out their activities.
- When reports are complete, they may be handed in to the instructor or they may be presented to the class and followed by discussion.
- Some interpersonal conflicts when personalities clash or only a few individuals do most of the work.
- Clear and concise discussions of the marking scheme are important.
- Instructors need to determine how to deal with the free riding students who do not earn a mark; each individual of the group may rate all of the other members of the group in terms of work quantity and quality.
- Used when the topic can be divided into components to be handled by different groups.
- Used to actively involve students.

Demonstrations

- Visual way of presenting information to a group; often supplements a written presentation or lecture.
- Used when a topic or idea is best presented in a visual manner for more direct impact.
- Instructor either prepares the demonstration or asks a guest to do so.
- All group members must see and/or hear it effectively.
- Must be rehearsed prior to the class presentation to ensure smooth running.

Media Sources

- Media and audio visuals are employed to present information.
- Includes pictures, slides, audiotapes, films, posters, television programs, song lyrics, videotapes, three dimensional models, demonstration objects, overhead transparencies, board displays, flip chart papers, the internet, DVDs and videotapes.

- Students can be asked to bring relevant newspaper clippings to class over a period of time in which a topic is being discussed or studied.
- Instructor views material for appropriateness and devises questions.
- Class views the presentation and follows with discussion or role play.
- Instructor must review material.
- Special equipment often needed and must be arranged prior to class time.
- Used when information from various sources is available for group presentation.

Guest Speakers

- A way of bringing different ideas, viewpoints and people into the classroom.
- Used when someone other than the instructor is an expert in a field and is available for guest appearances.
- Instructor and guest speaker discuss the topic, details of class time, and how the topic fits into the course.
- Guest speaker usually comes to the classroom, gives the presentation, then opens the floor to questions from the students.
- Guest speakers are often difficult to fit into class schedule and travel expenses accrue.

Team Teaching

- A way of bringing different ideas and people into the classroom.
- Used when two or more facilitators can combine interests and areas of expertise and share the class time and work.
- Instructors decide who covers each topic and when sessions will be conducted.
- Each responsible for their own session; sessions taught independently except for discussion on how they flow together.
- Alternatively two or more instructors can team teach by each being present for the other's class presentations with or without active participation.
- Requires a coordinated effort by team members or the presentations may be very disjointed.

6. Large Classes

Teaching a large class is time and energy demanding for the direct teaching activities, the organizational and administrative work and individual contact with students. In teaching large classes, use information and teaching tips presented throughout the manual. There are also some teaching tips specific to large classes (Lewis 1987).

Organization

- Be efficient and organized in managerial aspects so the class flows smoothly.
- Assume control and establish rules of behaviour at the very beginning.
- Put rules in writing on the course outline so there is no misunderstanding.
- Problems to be prepared for include inattentive behaviour like talking during class, tardiness and chronic absences from class.
- Always begin and end classes on time.
- Return papers, assignments, etc. in an organized manner that does not take too long.
- Put papers in alphabetized folders or envelopes at the front and/or sides of the room.
- Call out one or two letters at a time and let those students get their papers or bring the folders in before class or stay after the class to allow students to collect their papers.
- Coordinate all sections of a course.
- Meet regularly with markers to set standards and clarify vagueness.

- Be clear and insightful regarding the importance of attendance.
- Have confidence in yourself and what you are doing and let it show.

Be Accessible and Concerned

- Project the image of being an accessible and concerned person.
- Be sure the students know that you care about them and that you want them to learn.
- Set a sufficient number of office hours and adhere to the schedule.
- Take students very seriously and let them know that you take teaching very seriously.
- Show enthusiasm for the subject and the opportunity you have to introduce the students to it.
- Reduce grading anxiety by being specific.
- Set up a suggestion box in your classroom or outside your office for students to anonymously give you feedback.
- Label the box for thoughts, questions, concerns, critiques and commentary.

Learn Names

- Learn as many names as possible as soon as possible.
- Remember that the more students feel like nobodies in large introductory classes, the less motivated they are to learn and the less likely they are to do the required work.
- Use a seating chart for the first few weeks of the term; tell students you really want to get to know them and this will help you to do so.
- Take group pictures to help associate names and faces.
- Use names frequently to remember them.
- Circulate frequently in labs or discussion sessions to meet students in a smaller group setting.
- Come to class early and leave late so students can come and ask questions, talk or make appointments.
- Ask groups of students to come meet you after class for a minute or two, e.g. everyone named Barbara, everyone with lime green running shoe laces, everyone from Brooks.

Treat all Students Alike

- Be certain that all students get the same information, can hear and see what is going on in the classroom.
- Tell students to alert you if they can not hear or see from the back of the room.
- Put all assignments in writing on a handout so they won't get misinterpreted.
- Make sure your overheads, chalk board writings, etc. are visible from the back of the room.
- Train yourself to provide systematic eye contact to all parts of the room.
- Make sure audio visual aids are visible and audible to all parts of the room.
- Use a microphone if students cannot hear you in the classroom.
- Be scrupulously fair.
- Avoid the tendency to give better marks to students you know by covering their names on tests and assignments or by asking students to only include their id numbers.
- Make sure you have a specific marking scheme and stick to it.
- Take frequent breaks when marking.

General Tips

- Use a variety of teaching strategies to cover the variety of learning styles of your students.
- Keep a brisk pace to your lecture presentation.
- Students who are busy listening and writing are less likely to talk to their friends.

- Work with the students as collaborators to overcome the space barriers.
- Ask students to sit closer to the front of the class if it is not full.
- Develop a sense of humour, not just for telling jokes, but for life in general.

7. Audio Visuals

Research shows that we retain 20% of what we hear, 30% of what we see, but 50% of what we see and hear. An effective audio visual aid will be remembered long after what you have said is forgotten. There are many audio visual aids that can be used in a classroom or laboratory such as overhead transparencies, chalkboards, slides, videos, audio tapes, the internet, powerpoint and films.

Preparing Visual Aids

- Keep them simple, one idea per slide or overhead.
- Point form is often most effective.
- Make them large enough to be seen from the back of the room.
- As a general rule, use a maximum of 7 lines by 7 words per line per overhead.
- If you can read a 2 inch slide without a magnifying glass, people in the rear seats can probably read it too.
- Standard 35 mm slides have a 2:3 horizontal format; confine material to the inner area and leave blank edges.
- Don't crowd information.
- Use red and orange only as highlight or accent colors.
- Do not use dark colored backgrounds such as black or very dark blue and green.
- Yellow is easily visually perceived, as are pink, light blue and light green.
- Use charts and graphs rather than tables to display facts and figures.
- Numerous websites and manuals provide useful information on preparation of audio visuals.

Using Audio Visuals

- Use audio visuals to reinforce concepts, illustrate ideas or stimulate student interest.
- Do not use only one kind of audio visual for an entire course or even an entire class; regardless of how effective it is, it can become boring and lose its effectiveness.
- Select audio visual aids that are appropriate for the room and the material presented.
- Avoid using high end technology to serve low end instructional practices.
- Avoid high end technology for very short class uses.
- Know how equipment works; how to turn it on and off, focus and change bulbs.
- Know where the spare bulbs are.
- Practice using the audio visual aid.
- Use legible writing and do not crowd the material on visual aids.
- Don't apologize for what you are presenting.
- If you're uncomfortable with the quality, redo it; it is an insult to your audience to use poorly prepared visual aids.
- Look at the students and talk directly to them, not the equipment, chalkboard, overhead or slide on the screen.
- Show key points on the screen to lead your audience; select a point and focus on it, minimizing movement.
- Don't read the material on the screen, your audience can do that; definitions and equations are exceptions.
- Do not block the students' view by standing in front of the screen or flipchart; ensure you are not just focusing on one side of the room when you present material.

- Have some information available as handouts so students don't spend all of the class time copying.

Chalkboards

- Have elaborate drawings or writings available as handouts.
- Print in neat large letters if your handwriting is less than completely legible.
- Face the class as you refer to information written on the board.
- Take chalk to class with you.
- Erase the board when you begin.
- Erase in sections, leaving the latest information on the board for slow writers.
- If you use coloured chalk, be sure the color is legible from the back of the room.
- Give students time to copy what you have written.
- Draw diagrams or pictures.
- Record student comments verbatim.
- Avoid squeaking and write legibly.
- Effective for student groups to use to report back to the class after group discussions.
- Erase the board before you leave as a courtesy to the next instructor.

Flipcharts

- Follow the general tips for chalkboard use above.
- Make use of the information on preceding pages by posting them on the wall; use tape that will not damage the wall covering.
- Use colored markers to enhance your presentation.
- Do not use highly scented markers, some people find them offensive.
- Use to highlight the organization of a presentation, to emphasize the main points and to stimulate student interest.
- Have flipcharts available for student groups to use to capture their key points in a lengthy discussion.

Overhead Transparencies

- Use for regular notes or specific illustrations and examples.
- Mask sections of transparencies with cardboard and progressively reveal information.
- Shift attention back to you by switching the projector off after discussing a transparency.
- Overlay several transparencies to illustrate changes, processes and to build up a complex idea; keep in mind what effect this will have on student note taking.
- Put labels and abbreviated notes on transparency frames to help you remember key details for discussion.
- Number the transparencies.
- Use colour and graphs for emphasis and interest.
- Use transparencies of power point slides or 35 mm slides if you only have a few of them and do not want to haul in the equipment for that small number.
- Actively use transparencies by writing on them and adding information as you speak.

35 mm Slides

- Use for regular notes or specific illustrations and examples.
- Slides are useful to show specific examples or concepts, aid student's memory, demonstrate detailed steps of a process, show spatial or visual relationships and provide illustrations of difficult or complex theories.
- Use a variety of slides including graphs, charts, people, places, things.
- Plan the narration to accompany the slides but don't memorize it.
- Keep the text simple and concise.

- Graphs and diagrams are better than tables.
- Use a remote control device from the front of the room, face the class and keep an eye on your students' attention.
- Limit the discussion of each slide unless it is very complex.
- If possible, leave a low level of light on to facilitate note taking.
- Include key slides to introduce segments and new topics.
- Use blank slides between sections.
- When you finish with your slides, turn the projector off.
- Consider using two projectors, especially to compare before and after type events or situations.

Videos and Films

- Always preview the entire video or film.
- Showing only applicable portions of a video or film, to ensure time for discussion.
- Prepare students to see the film or video.
- Help them view the presentation critically and thoughtfully.
- Mention whether or not students should take notes.
- Interrupt as necessary to enhance learning.
- Conduct a follow up activity.
- Include content on exams or quizzes.
- Support presentations with meaningful follow up such as discussion, debate or role play.
- If at all possible, leave some low level lights on to facilitate note taking by students.
- Try to close blinds or other window coverings to facilitate viewing.
- Tell students the purpose of the film or video as otherwise they often tend to view them as a babysitting device.

Power Point Presentations

- Consider advantages of this newer technology in providing information, animation and colour.
- Use and prepare in a similar way to slides.
- Use to incorporate 35 mm slides and other material.
- There are numerous web pages and books that address the details of power point development and use.
- Do not be tempted to overdo the use of powerpoint presentations; students get very tired of the same old means of presentation, regardless of how sophisticated and visually stimulating it is.

8. Survival Tips for the First Class

Don't take the first day of class for granted. Students' initial observations and impressions are too important to risk by giving a boring, lackluster introduction. Don't hesitate to use the full class period. Students are curious about the course and you. A well organized and well utilized first class lets students know that you are interested, competent and prepared and it sets expectations that they need to be conscientious in the course.

Discuss some important aspects of the course, give them a preview of what will follow. Students are often overwhelmed with input the first day of class and hope everything will settle out in time. They may not recall the details and they may lose the course outline. What matters is what actually happens, and the kind of impression you made? Did you let them know why the course is interesting; why you are pleased to teach it; what they will know and

Prior to the First Class

- Locate your classroom to avoid being late for the first meeting.
- Inspect the room for future planning such as furniture arrangement, electrical outlets, chalkboards, lights and equipment.
- Note any barriers to effective learning such as being adjacent to a noisy corridor.
- Have shortcomings corrected if possible.

Starting the Class

- If you want to achieve an informal style, arrive early and get to know the students.
- If you prefer a more formal style, wait until the scheduled hour and arrive just before class begins.
- Write on the chalkboard the course name, number and section and your name; it is easy for students to end up in the wrong classroom on the first day of classes and it will help them know how you wish to be addressed (Dr., Mr., Ms, first name).

Introductions

- Introduce yourself; tell students where you're from, your professional background, what kind of research you do, why you are interested in teaching the course.
- If the class is small, let students introduce themselves by telling the class where they are from, their program, their year in their university program, why they're in the course.
- If the class is large, go through the class list or ask students to introduce themselves to the student on their left or on their right; many life long friendships begin in large first year university classes.

Course Structure, Policies and Course Outline

- Tell why you are excited about the course or subject; such feelings can be contagious.
- Discuss course objectives and what students should be able to do or know after the course.
- Discuss topics to be covered, how the topics to be covered relate to course objectives, how the course fits into the curriculum and into their careers.
- Discuss texts, required readings and library reserve readings.
- Discuss how students will be evaluated, attendance, exams, assignments, assignment deadlines.
- Discuss how you will handle missed or late assignments; will they be accepted, will there be a deduction in marks.
- Discuss missed exams or quizzes; whether make-up exams are possible or if marks will be redistributed.
- Make it clear what you consider to be a valid reason (e.g. medical doctor's note) for missed or late exams or assignments.
- Clearly define plagiarism and cheating and how you and the university will deal with these incidents if they occur; refer students to the Code of Student Behaviour in the University calendar for specific details.

Information from Students

- Get some information from your students by asking them verbally or giving them a short questionnaire to fill out.

- Get any needed contact information and clearly explain what you will do with the information and that you will not give this information out to others without first getting their permission.
- Find out what students intend to get out of the course, what they think it is about, what they would like to be able to learn.
- Ask to see anyone with registration problems after class instead of taking up class time to deal with individual problems.
- Find out if any students have medical conditions that you may have to deal with; this is best done on an information questionnaire; tell them why you want this information and that it will only be used in emergencies.
- Find out if any students have fears of speaking in class or abhor team work; this can be done by asking a question on the information questionnaire such as, is there anything I need to know about you that will affect your participation in this course.

Reduce Nervousness

- There are many things to do if you are quite nervous facing the class for the first time.
- Accept that it is okay and normal to feel that way.
- Mentally step out of your space; look at that space and yourself in it; see yourself conducting the class well; see students responding to you and enjoying the class; take a deep breath, step back into your space and begin.
- Admit to your students that you are nervous, they too are often nervous in the first class and will see you as being human.
- Take a deep breath and let it out slowly; repeat whenever you begin to feel panicky.
- Slow down your rate of speaking.
- Practice positive feelings; imagine how you might feel with all eyes on you on the first day of class; attune yourself to where you feel tense and try to relax those parts of your body, one at a time, slowly and effectively.
- Remember the calm feeling of that relaxed state.
- Shift the focus of your attention and concentrate on what you are saying not how you are feeling or appear.
- Smile often, but don't grin constantly.
- Check your normal expression to be sure it is not grim and intimidating, but relaxed and pleasant.
- Nervousness is one small step from positive excitement; enjoy the adrenalin flow.

VI. ASSIGNMENT AND TEST CONSTRUCTION

1. Assignment Construction

Assignments should take into account the various learning styles of students. Be creative in developing assignments and in modifying standard types. Give a variety of assignments in any course if possible.

Regardless of the assignment given, the instructor must be clear and concise in the objectives, format, the marking scheme and the time frame for completion. Give a detailed marking scheme to the students before they begin the assignment so they can see exactly how they will be marked and to better understand what is expected of them. The marking scheme can be posted on the course website or included in the course outline.

Writing Assignments

- Can increase student involvement and learning of subject matter, as well as provide the opportunity for students to think.
- Must be graded with an emphasis on grammatical correctness and style as well as student understanding.
- If students can only recognize and parrot key words, they probably don't understand the material; they must explain the material clearly and coherently.
- Writing assignments can vary considerably.

Term Papers

- The jury is out on the merits of the term paper.
- Some instructors believe they are poor learning tools, stating that students rarely review comments and many do not retrieve them at term end.
- They are time consuming to prepare and students get little if any feedback during term.
- Students are often tempted to use papers from previous course registrants.
- In contrast, other instructors believe the term paper provides a good opportunity for students to become familiar with the literature and learn discipline in writing and planning.

Thought Papers or Think Pieces

- Require students to think and write about a topic from their own perspective.
- Research papers, book sections or a lecture topic may form the basis for the paper.
- There are few references in the thought paper, since the ideas and their development are the student's own.

Unmarked Writing Assignments

- Help students think, remember more and discuss better.
- These assignments can be given at the beginning of a class as a reminder of their homework reading or a point from the last class; in the middle of a class if things are dragging or there is something you want them to think about; or at the end of a class to think about what's been discussed.
- Students can share writing assignments with each other by reading out loud to a small group or exchanging papers.
- Have rules of critique for students, such as always say one positive thing before you say a negative thing.

Decision Making Papers

- A one page presentation of all facts and observations needed to understand an issue and the trade offs that a decision maker confronts (Zulauf and Meier 1990).
- The intent of decision making writing is to reduce the amount of information to process and its most important feature is conciseness.
- Important numeric and verbal facts, observations and concepts are communicated in paragraphs of two or three sentences.
- Paragraphs are grouped into short homogeneous sections and may contain brief tables of data.
- Section headings provide an outline of the paper's major points.
- While important, conciseness does not come at the expense of accuracy, completeness or objectivity.
- The paper is limited to one page with minimum margin requirements and type size.

Socratic Dialogues

- Can be used to explore a topic.
- In this writing assignment, the questions asked are as important as the answers given.
- The students can select two characters to carry on a dialogue about a specific topic.
- By the end of the paper, the characters will both have learned much about the topic from each other.
- Students can get imaginative and use characters that would not be able to talk to humans such as pets, other animals, plants or beings from another planet.

Explanation Assignments

- Include explaining a concept or principle to several different audiences, such as a young rural Albertan, a scientist, a clerk from another country, an extraterrestrial creature.
- A student of mine once put together a short children's book, complete with illustrations.
- The focus is on level of detail developing an explanation appropriate to the individual.
- If students can explain an issue or principle, they usually understand it.

Projects

- Can be individual to group efforts that are completed in or out of the class.
- Format and topics can vary from a three dimensional plan, a home video or a text book outline.
- Giving students a choice of projects is good for learning outcomes, but often makes it more difficult to mark or grade; try to find some compromise between the two.
- Advantages of project assignments are that students get hands on experience, the opportunity to work with classmates and in groups and to pursue knowledge outside of the university campus and to apply theory.
- Disadvantages of project assignments include the personnel problems of group work, difficulty in assigning grades and helping students choose projects that are meaningful yet manageable.

Visual Assignments

- Can be flow charts or posters as an important alternative and compliment to writing assignments.
- They give students who excel in this area an opportunity to do well and be creative.
- They provide variety.
- Marking schemes must be well thought out to incorporate visual quality.
- Visual assignments can be done by individual students or groups.

Class Presentations

- Vary from a simple project or paper presented to the class to a grander presentation to a group of researchers and off campus experts.
- The audience should be appropriate for the course level.
- Presentations can take the form of a panel, debate, symposium or role playing.
- Students can teach a class or give a demonstration.
- Presentations provide variety in learning opportunities but can be highly time consuming.
- Alternatively, a group presentation has the added advantage of providing students with the opportunity to work with fellow classmates.

Problem Solving Assignments

- Can range from the traditional mathematical type to solving an environmental concern with scientific knowledge.
- The assignments can be written, presented in class or visually presented.
- Students could be asked to present a case to a judge and jury or write a consultant's report.

Media and Audio Visual Assignments

- Can include an audio taped interview, presentation or narration, a short film or a video taking various formats such as an interview or news presentation.
- The students may conduct an actual interview of someone either on or off campus and considered to be an expert in the topic being studied.

2. Test Construction

As with assignment, whether the exam is a term final or a short pop quiz, the instructor must be clear and concise in the objectives, format, marking scheme and the time for completion. Tests should consider the various learning styles of students. Tests can also be creative and interesting for students to write and instructors to mark.

Level of Questions

- Bloom (1956) classified questions according to a hierarchy of intellectual skills moving from simple to more complex.
- Knowledge: requires students to remember previously learned material from simple facts to complete theories; all that is required is to bring to mind the appropriate information.
- Comprehension: requires students to demonstrate that they understand the meaning of material; they may translate material into their own words, use a given equation to solve a problem, translate a literal statement into an equation, explain, interpret or summarize.
- Application: requires students to use material in new and concrete situations; it may include the application of rules, methods, concepts, laws, principles and theories; students may be required to recognize and solve a problem where the equations are not given; the task is to apply what has been learned to problem situations in real life.
- Analysis: requires students to demonstrate the ability to break down material into its component parts so that organizational structure may be understood; it may include the identification of the parts, analysis of the relationships among parts and the recognition of the organizational principles involved; learning outcomes represent a higher intellectual level than comprehension and application because they require an understanding of both the content and the structural form of the material.
- Synthesis: requires students to put parts together to form a new whole, patterns, structures or classification scheme; learning outcomes stress creative behaviour and

- Evaluation: requires students to judge the value of material for a given purpose based on clearly defined criteria.

Principles of Test Construction

- Test construction has been discussed in detail by Unruh (1989) and Wright (1988) and many of their ideas are incorporated in the section below.
- Construct a test so it contributes to improved teaching-learning practices.
- Tests can influence course objectives, methods and/or prerequisite entering behaviours.
- Base test questions on a representative sample of course content and specific learning outcomes to be measured.
- Make test questions at an appropriate level of difficulty.
- When constructing test questions, keep ambiguity low and reduce answering errors that might be attributable to using complex sentence structure or difficult vocabulary levels.
- Construct test questions so students obtain the correct answer only if the desired learning outcome is attained.
- Avoid trick questions that do not address specific learning goals.

Practical Approaches to Test Construction

- Note possible test questions throughout the term; writing a few after each class is ideal.
- Avoid trick questions; if the majority of students get a question wrong, it was likely a poor question.
- Use humour to relieve student tension, but don't get carried away; one instructor has a point in the exam that says if you could use a little comic relief turn the page (a cartoon is presented on the back side of the paper).
- Give a few bonus questions that can be interesting and entertaining.
- Keep questions as brief as possible to eliminate the need for speed reading and writing.
- Use a variety of question types.
- Group similar type questions so students don't constantly shift response patterns.
- If using a series of questions in which answering successfully depends on knowing the correct answer to a previous item, grading should take early errors into account and students should be informed of this.
- Arrange items in order of difficulty to avoid discouraging students at the exam beginning.
- Weight points according to question type, amount of learning assessed and time students should spend answering.
- Avoid patterns in the response key.
- Strive to include items which test the higher levels of thinking and learning.
- Minimize such qualifying words as always and never.
- Use the positive statement whenever possible.
- Don't give too many clues to answers in preceding or subsequent items.

Steps to Test Construction

- Owens (1983) presents various steps for test construction.
- Determine test purpose such as to reinforce learning, assess content mastery, determine grades.
- Determine time constraints you have for preparing the test, administering the test, marking the test.
- Determine what thinking skills were stressed in instruction and are required in the test.
- Apply the same emphasis and level of thinking required for course topics to the test.
- Determine types of items best for the testing situation including the time for the test and the number of students who must be tested.

- Write explicit directions for the test sections indicating credit on each section.
- Organize the layout: number, provide blanks, provide spaces, group like items.
- Make the answer key; do this in draft form as you develop the questions.
- Critique for inadvertent clues, duplication, topic distribution, difficulty, length, tricky items, readability, typos.

Multiple Choice Questions

- They are versatile, testing level of understanding, ability to apply learning and ability to integrate information from several sources.
- They are good to obtain feedback, if incorrect alternatives are constructed to cover common errors.
- They are difficult and time consuming to construct well.
- They can be discriminating to students, especially when alternatives are plausible.
- They can be open to interpretation when students read more into the question than is there.
- The stem should clearly present the question.
- Do not use incomplete statements for the stem.
- Keep choices short.
- Use definition terms in the stem rather than as a choice.
- List choices on separate lines so all are distinguishable.
- Make choices homogeneous, plausible, grammatically consistent and the same length.

True False Questions

- They are easy to prepare.
- They cover much content since students can respond to many questions.
- They may not give true estimates of student knowledge since 50% can be correct by chance
- They may be poor for diagnosing student strengths and weaknesses.
- They are considered tricky by students.
- They are either very easy or difficult.
- Use a large number of items.
- Do not take statements verbatim from the text or your class notes.
- Avoid negatives and ambiguous or tricky items.
- Increase diagnostic value by having students revise false statements to true ones or indicating why they chose a true or a false answer.
- Use true, false or uncertain responses and ask for explanations for the choice made; explain that uncertain means it could be true in some situations but not others, all the statement is true but for one word in it; tell students they must clearly indicate the details of their uncertainty.
- Use statements which are entirely true or entirely false to avoid penalizing the well informed student.
- Avoid tip off words; all, always, never, every, none imply a false statement while generally, sometimes, usually, maybe, imply true statements.
- Avoid ambiguous terms like several, seldom, frequently.

Matching Questions

- They are suitable to who, what, when and where questions.
- They are generally brief and uninvolved.
- They permit efficient use of space when similar information types are tested.
- They can seldom measure beyond recognition of basic factual knowledge.
- They are poor for diagnosing student strengths and weaknesses.

- Use homogeneous material in sets of matching items.
- Keep responses short and simple.
- Arrange items in the response column in a logical order (alphabetical, numerical) to avoid wasting time searching.
- Place a set of items on the same page.
- Use no more than 15 items in one set.
- Provide more responses than stems to prevent students using elimination rather than concentrating on answers.
- Never use multiple responses for a stem.
- Multiple stems may be used for a response.
- Number each stem for ease in later discussion.

Recall Questions

- These are fill in the blanks, short answer, definitions and lists.
- They are very easy to prepare.
- They use vocabulary or phrasing exactly as presented in instruction or readings.
- They are good for strictly factual information where a specific word or expression is important to know.
- They reduce guessing since they require a definite response rather than simple recognition of a correct answer.
- They reduce objectivity in grading unless only one word or expression is correct.
- They test only rote memory.
- They may discourage the student because the task is precise and often difficult.
- They encourage a fragmented study style since memorization of bits and pieces will result in a higher grade.
- Write original questions, not sentences directly from the text.
- Make questions clear and concise.
- Use vocabulary and phrasing similar to the text or as presented in class.
- Ask for a specific number of items.

Subjective Questions

- They encourage students to strive toward understanding concepts as integrated wholes.
- They permit students to demonstrate achievement of higher level objectives, such as analyzing, contrasting, comparing.
- They allow expression of breadth and depth of thinking.
- They encourage originality, creativity and divergent thinking.
- They offer students the opportunity to use their judgement, writing style and vocabulary.
- They are the least time consuming to prepare.
- They may permit only a limited sampling of learning due to student response time.
- They are not appropriate for every subject.
- They are not appropriate for assembling knowledge of basic facts.
- They provide students with an opportunity for bluffing, rambling and snowing.
- They create pitfalls for students who go off on tangents or misunderstand the main points.
- They can be difficult and time consuming to mark.
- They are subject to biased and unreliable marking.
- They can permit ratings influenced by organizational style, grammar and neatness rather than by content of responses.
- Use novel material relating to class learning.
- Make questions comprehensive not dealing with small units.
- Present directions so the student is perfectly clear what needs to be done.

- Instruct students how to respond.
- Plan ahead, outline, distribute time.
- Allow appropriate time for students to do justice to the problems.
- Specify guidelines for students on length of time, length of desired response and values for each question.

Alternative Questions

- There are innovative and creative ways to evaluate students and make testing experiences positive; several examples are cited in *The Teaching Professor* (October 1989).
- Give a blank question and ask students to write the question they most wanted to see on the exam; grade on quality of the question and their answer; this provides feedback on what students thought they needed to know.
- Attach a copy of the final exam to the course outline; list questions that could be on the final and discuss them during the course of the term; this approach reduces anxiety and stimulates thought throughout the term.
- Tell students they will either make or take an exam; grade their tests on quality and quantity of content covered, clarity of questions, completeness of answer key, assignment of points to questions, neatness and legibility of the exam; students will need to choose what is important, think of the whole course and how material fits together.
- Make part of the exam a group question where groups of six or eight students work together after handing in the first part of the test which they did independently; this stimulates insight and reflection; the students develop their abilities to analyze and synthesize, to explain, to present logical arguments and to work well as a team.
- Give practice exams as assignments.
- Give an oral test as part of the final or midterm exam.
- Give students a set of answers and let them generate questions to the answers, individually or cooperatively.
- For exams, let students bring a 3 x 5 inch index card with any information they choose to include; students are thus forced to sift through material, notes, etc. and make decisions about what they will need with them.

VII. GRADING AND EVALUATING

1. The Assessment Process

The assessment process is comprised of determining what is to be assessed, designing the means and criteria of assessment, assessing, interpreting results, giving and using feedback. The type of assessment used is important, with research showing that students learn according to how they are tested McMillan (1988). If we test students for factual recall, then they will memorize a set of facts. If we test them for ability to analyze relationships, then they will begin to think critically. In this regard, a distinction should be made between evaluating and grading. Components of variables which contribute to determining course grades should reflect each student's competence in the course content. The components of a grade should be academically oriented and not be tools of discipline or awards for pleasant personalities or good attitudes.

2. Evaluating Student Learning

- Be aware of and follow the evaluation procedures used at your institution.
- It is not sufficient to simply have a method of assigning grades.
- The method must be defensible by the user and must be documented and kept on file.
- Make sure your grading scheme is clear to your students; discuss it with them in the first few days of the course.
- Do not change grading part way through the course without discussion and the unanimous approval of the class.
- Student performance can be evaluated in many ways, but only information which relates to course goals should be used to assign the course grade.
- Many believe that neatness, correctness in spelling and grammar and organizational ability are all worthwhile traits, but unless course objectives include instruction in these skills, students should not be graded on them.
- An alternative belief is that unless these traits are not graded, students will not take them seriously.
- Class attendance should generally not be considered in grading although it may be part of the course requirement (Frisbie et al. 1979); if several students are absent frequently, the instructor should evaluate the classroom environment and methods to determine if changes are needed; first, ask students why their attendance is low.
- When participation grades are required, the instructor should keep class notes on the frequency and quality of participation; students should be graded in terms of their achievement level, not in terms of their personality; quality and quantity of participation should be considered.
- If course assignments and exams are few, each carries great weight and should be marked accurately.
- The number of components or elements used to assign a course grade should be large enough to enhance high accuracy in grading.

3. Types of Grading

Pass Fail Grading

- In pass fail grading, no grades are assigned.
- The student will pass the course based on the quantity and/or quality of the work

completed and will fail the course on the lack thereof.

- McKeachie (1986) states there is little evidence that pass fail grading has positive effects.

Absolute Standard Grading

- Absolute grading is compatible with mastery or near mastery teaching and learning techniques (Frisbie et al. 1979).
- Grades are assigned by comparing student performance with specified absolute standards.
- The instructor is interested in how much of a set of tasks and ideas a student knows.
- There are no quotas in each grade category.
- Course goals and standards must be defined clearly and communicated to the students.
- The focus is on achieving course grades, not on competing for a grade.
- Final course grades reflect achievement of course goals and what a student knows.
- Students do not jeopardize their own grades if they help another with course work.
- It is difficult and time consuming to determine what course standards should be for each possible grade.
- The instructor must decide on reasonable expectations for students.

Contract Grading

- Contracts do not force all students to meet the same standards, thus, within limits, students can feel that they have achieved what they wanted to achieve.
- The instructor typically selects a variety of exercises or projects that students can do to earn points in a course.
- Students select those that they feel they can do best in or will enjoy doing the most.
- Term papers, projects, case studies, class presentations, assignments and exams, all with the same weight, could be among the list of choices.
- Students could also select the type of exam they wish to take, such as oral, essay or short answer.
- Students may contract for a specific grade; in this case, the instructor specifies a certain number of activities which will need to be completed to earn a given grade.
- There is some criticism that this practice is soft and there are no standards.
- Therefore students are simply allowed to do their own thing without regard for excellence.
- McKeachie (1986) suggests the problem is that students often gain points, not for achievement, but rather for carrying out those activities, such as writing papers or reading books, that should be conducive to achievement.
- Thus rather than measuring learning, the instructor assesses whether the student has engaged in activities that are the means to learning.
- Fuhrmann and Grasha (1983) present several rules or suggestions for contract learning.
- Students must know exactly what is expected for a given grade.
- Reinforce student learning frequently by giving small amounts of work to be evaluated on a regular basis.
- A contract must reward accomplishment rather than obedience.
- Consider using criteria of quality as well as quantity.
- Consider negotiating with students the terms of the contract.
- Have students sign their contract.

Competency Based Grading

- The student is graded on a pass fail basis for achieving mastery or competence in terms of carefully specified objectives.

- Mastery learning forces the teacher to think about goals and it focuses students' learning which can result in better retention.
- McKeachie (1986) suggests that letting students turn in papers or reports over and over again until they are correct is a fine teaching technique, but the grade for a rewritten paper should not be counted as equivalent to that of a paper that has not been rewritten.

Comparison Grading

- If a student's performance is compared with that of the rest of the class, the grade does not necessarily reflect absolute attainment of skill and knowledge (Frisbie et al. 1979).
- The nature of the reference group is the key to interpreting grades based on comparisons with other students.
- Individuals whose academic performance is outstanding in comparison to their peers are rewarded.
- The system is common and thus familiar to instructors.
- No matter how outstanding the reference group is, some will receive low grades; no matter how low the overall achievement of the reference group is, some will receive high grades.
- Grades are difficult to interpret without knowing overall quality of the reference group.
- Grading standards in a course tend to fluctuate with the quality of each class of students.

4. Methods of Assigning Course Grades

Weighted Grading Method

- The instructor must decide on the type of assessments to use, such as exams, quizzes, papers or assignments.
- Each component is assigned a percentage of the total marks for the course.
- A total is calculated and percentage values are converted to a letter grade.

Distribution Gap Method

- Students are ranked in the form of a frequency distribution or tally of exam scores.
- The distribution is scrutinized for gaps, several consecutive scores which have zero frequency (Frisbie et al. 1979).
- A horizontal line is drawn at the top of the first gap, here are the As; then a second gap is sought to separate the Bs and the Cs, etc.
- The major fallacy with this technique is the dependence on chance to form the gaps.
- The instructor can refine the method by evaluating borderline cases with additional criteria.

Grading on the Curve

- This method of assigning grades, based on group comparisons, is complicated by the need to establish quotas for each grade category.
- Students who do exceedingly well are assigned the top grade, which may be the same as those students who scored many points lower, depending on the width of a grade class.
- Students who do the poorest, are assigned the failing grades, which may be high enough to pass in terms of absolute values.
- Frisbie et al. (1979) suggest grading on the curve is efficient from the instructor point of view, and therein lies the only merit of the method.
- McKeachie (1986) calls this type of grading educationally dysfunctional.

Percent Grading

- Scores on tests, papers, projects, etc. are converted to a percent based on the total possible score.
- The percent score is then interpreted as the percent of content, skills or knowledge over which the student has command.
- Grades can then be converted to other scales, e.g. students with 93 to 100 receive an A on the letter grade scale.
- The concern with this method is the rationale used to determine the cutoff point for each grade.

5. Marking Tips and Strategies

Regardless of whether you are marking exams, performances, reports or papers, be sure to explain your marking scheme and what you are assessing to the students.

Marking Mechanics

- Use colored pencil or ink so your comments stand out.
- Some students feel that red is too intimidating, use your own feelings as a guideline or discuss this with the class.
- Mark by question, moving through the same question in each paper.
- Prepare in advance some acceptable responses; list key points to be made.
- Mark papers as anonymously as possible; ask students to put their identification number on their assignment or put their name only on the back.
- Before marking any question, read through several papers to get a feel for the norm.
- After marking a question, shuffle papers so no paper is consistently marked first or last.
- Take breaks during marking to ensure you don't penalize or reward students because you are bored or tired; be sure not to mark the first few too harshly.
- Be liberal with comments, give strengths, weaknesses and suggestions for improvement.
- Don't be miserable, sarcastic or arrogant in writing comments; it leads to alienation.
- Collect papers or exams in a way there is no doubt who handed them in.
- Have students sign a sheet and print their names when handing in exams or important assignments.
- Return all assignments and exams to students individually; do not leave them outside your office in public view.
- Do not let students take important assignments or exams for friends.
- Return assignments and exams as soon as possible.

Marking Laboratory Work

- You may wish to assess performance in the laboratory.
- Deducting marks for obvious lack of preparation, poor techniques, untidiness and carelessness may cause tense lab sessions and students may be too inhibited to try things; comment that a certain technique would be marked low on the final lab exam.
- Marking performance in the lab may lead to more conscientious performance.
- Try to strike a good balance.
- Mark for closeness to the expected results if appropriate.
- In lab reports, deduct marks for omission of equations, observations and calculations.
- Discuss all graded work with the class but do not bore the majority if only a few answered the question incorrectly.
- Be certain that all forms of references are properly referenced.

Marking Essay Assignments and Questions

- Make sure your evaluation criteria for students are clear.
- Focus separately on content and presentation aspects.
- Simplify grading, particularly if you have a large class and give a lot of written assignments.
- Use codes such as + or - or ok.
- Develop a short hand commenting system that you can use quickly while you read but gives good feedback to students such as checks for good points, underlining points that are not clear, circling typos or spelling errors.
- You can accept written as is or rough copy editing for think pieces and in class writings.
- On out of class essays, demand clear well organized writing or typing with no surface mistakes or typos.
- Use a point score system; break the ideal model into specific points and assign a subtotal value to each point.
- A holistic method of marking may be employed in which the entire essay is read and an overall judgement or grade is then given.
- Start by skimming through all of the essays and putting them into categories of five to nine piles relating to letter grades.
- Then read through each essay in each grade category to ensure that the grade has been fairly assigned.
- In writing comments on student essays, emphasize your evaluating criteria.
- Make comments clear, descriptive and helpful, tell them what they are doing well, what they are failing to do or need to improve on.
- Limit your comments and focus on the important criteria specified in the assignment.
- Do not correct all grammar and usage errors but point it out or underline it the first time the incorrect format occurs.
- Do not rewrite the essay.

Evaluating Discussions

- Pendergrass and Wood (1976) focus on grading discussions.
- Discussions have two different types of goals, product goals and process goals.
- Product goals deal with academic achievement.
- Process goals deal with interpersonal relationships and discussion skills.
- Once you have formulated the goals for the discussion session, decide what information you will accept as evidence that each goal was reached.

VIII. PREPARING AND MANAGING A COURSE

1. Developing an Appropriate Teaching Base

An appropriate teaching base includes the necessary knowledge of the subject matter, your credibility and creativity.

Developing a Knowledge Base

- Being knowledgeable about the discipline which you are teaching is expected; however, being all knowing is not a prerequisite for effective teaching.
- Know the basic principles and applications of the field you are teaching.
- Have information peripheral to the field that is interesting and informative.
- Use different ways to explain concepts and ideas.
- Be current with the topic presented; include journal articles and data from your own research if applicable.
- If you aren't sure about answering a student question or don't know the answer, be honest; offer to look up the answer (thus, you'll learn as you teach) or, direct students to a source to research the topic on their own.

Developing Credibility

- The five dimensions of credibility include competence, trustworthiness, dynamism, composure and sociability (Fuller 1969).
- Competence implies knowledge and being informed; to increase competence and credibility, cite references, be organized and be comfortable with a specialized vocabulary; e.g. practice Latin pronunciations to sound natural.
- Trustworthiness means being respectable, decent, honest and ethical; to inspire trustworthiness be consistent, provide rationales, explain your expectations and carry out your commitments or promises.
- Dynamism is reflected in an outgoing, energetic personality; be interested in your topic, use vocal variety and vivid language and show enthusiasm.
- Composure shows you are confident and in control; be prepared, practice but don't memorize and try relaxation techniques; avoid annoying habits like tugging on your clothing or playing with your hair.
- Sociability is reflected in a friendly, pleasant manner and attitude; cultivate a positive attitude towards students, smile, listen carefully and use their names.
- Maintain eye contact with students to enhance credibility; Beebe (1974) found high eye contact in lectures led students to rate instructors as more highly qualified and honest.
- Develop a style you are comfortable with; do not try to be someone else; experiment with new ideas and find what works best; let your own personality shine through.

Developing Creativity

- Be creative; there is no limit to your own imagination.
- Don't be predictable; think of unusual and non-routine ways of teaching your material.
- Talk with your students; ask for their input.
- Talk with fellow instructors; ask for their ideas and examples and share yours.
- Check on supplementary resources (slides, tapes, photos, films).
- Tap all of your resources, your imagination, your voice and any talents or skills.

2. Preparing to Teach a Course

McKeachie (1978) discusses how to prepare and offer a course with emphasis on thinking carefully about course objectives to determine choice of text, assignments and teaching format. Steps to follow include preparing course outlines and exam schedules, ordering texts and library reserve materials, preparing handouts and other material, working out student assignments and arranging for audio visual materials and guest lectures.

Obviously the first time a course is taught requires more work and input than subsequent teachings of it. However, do not become complacent about teaching a course, as it can easily become stale or outdated if it is not reviewed prior to each time it is taught.

When teaching a regular course, go over the basic principles and ensure they still hold true. Update parts of the course that may have changed with new scientific research and their applications. Update anything that may have changed with regulatory or cultural changes in the societal or governmental framework in which the course is applied. Review the textbook and any recommended or required readings to ensure they are still appropriate, current and available. Review assignments and exams to make sure they are still testing the appropriate learning objectives. Review any notes you might have made about the course the last time it was taught. Review student course evaluations, both midterm and end of term, to find what was effective and what was not effective for the students.

Skim through manuals on teaching and learning to get some new ideas. Watch a good movie on teaching to get back into the mood.

3. Determining Course Objectives

- Well written objectives tell students what is expected of them and provide guidelines for assessing progress (Johnson 1990).
- Learning objectives should consist of explicit statements on ways in which students are to change after the course.
- Objectives should communicate what the instructor wants the students to accomplish.
- Objectives should reflect expected student behaviour; what they can do and know.
- The emphasis is on observed activity, outcomes (not what will be done to achieve the outcome) and student (not instructor) activity.
- Course objectives should reflect the three major domains to which we teach: cognitive (knowledge and intellectual skills with an emphasis on knowing, conceptualizing, comprehending, applying, synthesizing and evaluating), affective (changes in interests, attitudes, values and adjustments) and psychomotor (manipulative and motor skills).
- The biggest problem is to avoid teaching much more than can be learned, to fill the student with so many details they fail to grasp the big picture.
- Students thus engage in bulimic learning in which they memorize material, regurgitate it on exams then forget it so promptly and completely that no mental nourishment remains.

4. Selecting and Using Textbooks

Use of Textbooks

- Determine whether you will use a textbook, supplement the textbook or whether the textbook will supplement your presentations.
- Do not repeat what is in the text but supplement, elaborate, interpret or clarify ideas.

- Textbooks are a source of uniform bodies of basic information in an organized, sequential approach to the subject.
- They include pertinent illustrations, graphs, maps and diagrams, bibliographies; they present a large amount of information in an efficient manner.
- They reduce in class time needed for integrating content and allow for application, analysis and problem solving.
- They a ready source of information for students reducing the necessity to select other supplementary reading sources.
- Textbooks become outdated and do not provide current innovations.
- They take time to select.
- They may affect writing course objectives.
- They allow little room to select content from more original and current sources.
- There may be a temptation to follow the text exactly.
- They may be culturally narrow.

Checklist to Determine Text Quality

- Wright (1987) provides a ranking checklist to determine the quality of a text with points from one (very adequate) through five (very inadequate).
- Current and appropriate citations.
- Recognized authors for the field.
- Favourable journal reviews.
- Topics corresponding to course objectives.
- Desirable sequencing of topics.
- Accurate content including recent developments.
- Freedom from national, racial and sexual biases.
- Clearly developed concepts, principles and generalization.
- Sufficient detail.
- Clear and succinct explanations.
- Appropriate reading level.
- Sufficient student background to understand the material.
- Titles, headings and subheadings to help visualize organization and relationships.
- Summary and review questions to use as study aids.
- Table of contents, preface, index and appendices are adequate and useful.
- Sources are documented accurately.
- Illustrations are accurate, purposeful, properly captioned and placed near related text.
- Tables, graphs, maps and charts are clear, pertinent and carefully done.
- The book is durable and well constructed.
- The type is clear, easily readable and large enough.
- Format, including page size, column arrangement, margin and white spaces contributes to communicating ideas and invites reading.
- Price is reasonable for the extent to which the text will be used.
- The text size and weight is appropriate for its use.
- Supplemental teaching aids, test questions and suggested strategies are available.
- Supplemental workbook, computer software, laser or audio disks are available.
- Measurements of student achievement such as test items are available.

5. Developing a Complete Course Outline

At the University of Alberta, the phrase course outline is used, although in other institutions the word syllabus is preferred. Giving a course outline to students on the first day of class is

Course Outline Contents

- Osterman (1984) describes the appropriate contents of a complete course outline.
- Your name, title, office number, office telephone, office hours, where to leave messages, email addresses.
- Names and contact information for teaching assistants.
- Course by number, section, title, meeting days and times, room and building.
- Prerequisites for the course.
- Description of the course, usually one or two paragraphs.
- Course goals or objectives.
- Required purchases such as texts, laboratory manuals, equipment or supplies.
- Due dates for major assignments; place, date and time of final exam.
- Grading standards and criteria; weighting of assignments and exams.
- Criteria descriptions for major assignments.
- Policy regarding grading system, academic dishonesty, attendance, late assignments.
- Topics to be covered in sequence as they will be presented.
- Any preparation for classes and labs such as read the chapter in your lab manual.
- Learning goals or objectives.
- Conceptual structure used to organize the course.
- Format or activities of the course.
- How students will be evaluated and grades assigned.
- Course policies such as lateness of exams, missed exams or quizzes.
- Calendar or schedule.

Questions to Ask About Your Course Outline

- Osterman (1984) has an interesting list of questions to ask yourself about your course outline; many of the questions are included in the following points.
- Is there information to challenge students intellectually and sustain their interest, yet not bore or overwhelm them.
- Is it flexible enough so you can adapt to suggestions from students or if emergencies arise.
- Is it coherent.
- Is there a recognizable relationship among topics, lectures, readings and assignments.
- Is there a separation of major and minor points.
- Will students be able to distinguish major themes of the course from supporting material and topics; this can often be done with headings that basically provide an outline for the course outline.
- Is there a sense of intellectual development.
- Will students emerge with information, skills and capabilities at the end of the course.
- Will they read the course outline and be motivated to get involved and excited about what is promised.
- What does the course outline communicate about you; course outlines provide subtle messages about the instructor; is he/she organized, prepared, personable, approachable, knowledgeable, interested.

- Does the course outline provide information on practical aspects of the course such as grading, readings or exam schedules.

6. Preparation for Class

- Osterman (1984) suggested a daily teaching checklist to assist in your preparation for class and to reflect upon once the class is finished.
- What are the objectives of this class session.
- How are you planning to divide the class session.
- For each of the following, write down the number of minutes or percentage of time you will spend on: review, the day's objective, summary and preview, explanation of theoretical concepts, application of theory, other.
- What is your teaching plan.
- Indicate the amount of class time you spend on each of the following methods: lecturing, discussion of student initiated questions, discussion of teacher initiated questions, class exercise, other.
- Read assigned material and make notes; do not read notes in class, but use for reference.
- Think of at least two different ways of approaching the material.
- Explain how the session is important, relevant and related to other information in the course.
- Prepare materials to be used in class (notes, transparencies, slides, assignments, books).
- Describe any new teaching approaches/techniques you intend to try.
- Most importantly, be flexible; don't pass the opportunity to have a class discussion because you planned to lecture.
- After the class, review your plan and reflect on the happenings of the session.

Planning the Class with Your Students

- Define learning goals such as what students should know by the end of the course or class, concretely and clearly.
- Communicate these goals to the students.
- Elicit student interest and difficulties at the start of the course and at each meeting and work out a joint agenda.
- One way is to list all items and check them off as they are accomplished.
- Discuss with the class the kind of format(s) you will use; pick one or several they are comfortable with and which are compatible with class goals.

7. Things for GTAs to Check with their Supervising Professor

GTAs should ask the professor for his/her decisions on the following matters before the course begins (Bailey 1986).

Type of Teaching

- Will I be lecturing; on a regular basis; occasionally; when the instructor is absent.
- Will I be leading discussions; when; should I stay close to the lectures or encourage students to talk.
- Will I be tutoring and/or giving individual assistance.
- How much help is too much; what kind of assistance shouldn't I give.
- Should I organize group help or review sessions.

- Will I conduct or supervise laboratory exercises.
- Do I keep track of and obtain supplies and materials; design or revise experiments; give demonstrations.
- Am I responsible for preparation and clean up.

About the Course

- What do I need to know about the course.
- Are there materials to help prepare for the course; texts required or for reference; manuals; guides; test items.
- What are the objectives of the course.
- Is it for general education for non majors; a requirement for majors.
- Should I attend the lectures.

Marking and Grading

- Will I be marking papers, projects, reports, quizzes, examinations, student participation.
- Are criteria for assigning marks clear; is the process for determining grades clear.
- Will the instructor review disputed marks and grades.
- How do I handle disputed marks or grades given by the instructor.
- How much time will I spend marking.
- Should I make copies of marks.
- Am I responsible for recording the marks.

Problems and Difficulties

- What if I encounter problems or difficulties.
- Who will supervise me; how; how often.
- What should I do, whom should I contact, if I can't attend a lab or discussion session.
- Do I handle disputes with students or does the professor.
- Do I report student concerns with lectures, exams.
- How do I handle emergencies.
- What is the procedure for plagiarism, cheating and grade appeals; do I handle these issues or does the professor.

Other Responsibilities

- What other responsibilities will I have.
- Will I be using AV equipment; what kind; am I responsible for getting and returning it; how do I schedule it.
- Should I have office hours to meet with students; hours per week; when; coordinated with the professor.
- How much latitude will I have to present new ideas; present different perspectives; try new teaching techniques.

Evaluation

- How will I be evaluated.
- Will I be evaluated by the professor, department, students.
- May I view the evaluation instrument before it is used.
- Will I have access to these completed evaluations.
- Will I be allowed to include questions on student rating forms.

IX. CONTACT WITH STUDENTS

1. Office Hours

- It is important to be available for student consultation and to have uninterrupted time for other academic pursuits.
- Regular office hours allow organization of time and provide students with an opportunity to speak privately with you.
- Regular office hours reduce student frustration at not being able to find you and having to set appointments.
- Set office hours after determining a time suitable for you and most of your students. Students whose schedules conflict with your office hours can make appointments when they need to see you, depending on the size of your class.
- One to two hours a week is generally sufficient; this may be in half hour sessions.
- If you have a large class you will need to set more office hours.
- If you teach more than one course try to keep the office hours separate for each course; this helps you stay on track and allows students waiting for their turns with you to talk with each other; encourage students with like questions to meet with you together.
- Your office hours should be in a room where students can speak privately with you.
- Post office hours on your office door, on the door of the laboratory or room in which you work and on your course outline.
- If you must miss your office hours, leave a message on your door with an alternative time students can reach you.
- If you schedule appointments back to back, do not make students wait but schedule additional time for the first student.
- Expect students to keep appointments. Call them or talk to them next class if they miss an appointment.

2. Communication

- Once students come to your office and find you are an approachable and helpful person, you will often find that they come to talk about personal problems or other courses.
- You should be aware of how to facilitate a helpful session.
- Try to be as approachable as possible, make the student feel welcome; don't hide behind your desk.
- Listen attentively and ask questions to show your attention; telephones, colleagues and other students should not interrupt.
- Rely on students to tell you what they came to discuss; if you suspect hidden problems, do not press the student to disclose them, but show you are receptive.
- Don't let students monopolize your time, but don't pass the opportunity that will help you know your students better.
- Learn to keep the student focused, particularly if there is a long line up; but do not cut short the time the student needs because there are others waiting in line.
- Learn how to ask directed questions to get to the heart of what the student's problem is.

3. Advising And Counseling

- Where a student asks for personal counseling, you may be able to help or you may not be the most appropriate person for the job.

- If you feel students need professional advice, refer them to University Health Services or a student counseling service.
- In emergencies, take the student to the appropriate service, or provide an escort for them.
- Do not advise in areas you are not professionally qualified to advise in; do not give legal advice if you are not a lawyer; do not give medical advice if you are not a physician.
- Review regulations on how to assist students with administrative details such as adding and dropping a course; do not give advice on dates and procedures if you are not certain; rather send the student to the appropriate authority.

4. Mentoring

A mentor is defined as someone who helps another person to become what that person aspires to be (Gladstone 1988). The term mentor may be taken to mean a trusted counselor or guide or a more experienced person who takes a special interest in the development of another person. If we simply think of a mentor as someone we feel drawn to, someone who seems to know things about life that we need to learn, it may help us to recognize that mentors can appear throughout our lives, whenever we encounter a new transition.

Daloz (1987) said "Mentors are guides. They lead us along the journey of our lives. We must trust them because they have been there before. They embody our hopes, cast light on the way ahead, interpret arcane signs, warn us of lurking dangers, and point out unexpected delights along the way. There is a certain luminosity about them, and they often pose as magicians in tales of transformation, for magic is a word given to what we cannot see, and we can rarely see across the gulf. As teachers of adults, we have much to learn from the mythology of the mentor. The original Mentor appears in The Odyssey as an old and trusted friend of Odysseus. He is appointed to look after the estate and, more to the point, Odysseus's son, Telemakhos. It is in Mentor's form that Athena, goddess of wisdom, speaks at critical times throughout the epic. Thus, Mentor is both male and female, mortal and immortal, an androgynous demigod, half here, half there. Wisdom personified".

Daloz further describes the mentoring relationship: "What I was beginning to realize was that teaching is most of all a special kind of relationship, a caring stance in the moving context of our students' lives. Of course it involves knowledge; of course the teacher has to know something; but what we know is of value only as we are able to form it in such a way that our students can make use of it for their own evolving ways of knowing". In mentoring we can recognize that in part our own growth depends on our students, it is the partnership of teacher and student that finally determines the value of an education. In the nurture of that partnership lies the mentor's art.

- There are general skills and characteristics of good mentors.
- Have open inviting personalities, approachable, patient and have a sincere concern for others.
- Mentors engender trust by suspending their own agenda for the moment and entering another's world.
- To be a successful mentor you must enjoy and love what you are doing as well as believe in your mentee.
- Mentors are skillful listeners; they possess sincere generosity, compassion and concern when they listen, show their feelings, share their ideas and allow people to sort things out.

- Mentors help set goals and standards and develop skills.
- Mentors see beyond what their mentees see.
- Interchanges with students involve a mixture of support and challenge, both going on at the same time.
- Support involves listening, providing structure, expressing positive expectations, serving as advocate, sharing ourselves, making it special.
- Challenge involves setting tasks, engaging in discussion, constructing hypotheses, setting high standards. With this also comes a vision of modeling, keeping tradition, offering a map, suggesting new language, providing a mirror.
- Mentoring is a two way street. While mentors nourish their mentees, they also receive rewards making them feel their own lives are worthwhile.
- Mentoring relationships may include a pairing of faculty members, with the old and saged professor offering advice and guidance to the new fledgling assistant professor, but with the old learning from the young also; it may include cross sex mentoring or same sex mentoring.
- The mentoring relationship may be between instructor and a special student, the professor and a GTA.
- In seeking to become a mentor or a mentee, the most important aspect is to work with someone that you feel drawn to, someone you could consider a kindred spirit.
- The ideal mentorships seem to evolve without any manipulation.
- However, there is a real benefit in seeking out these relationships through trial and error as opposed to waiting for fate to deliver the opportunity for the perfect chance encounter.
- We can all facilitate mentorships by introducing appropriate people who may not yet have recognized the kindred spirit in each other.

X. CONFLICTS AND RESOLUTIONS

1. Class Attendance

- Stress the importance of attending all class or lab sessions to your students.
- Although students often think it is okay to skip if they get notes or information from other students, they risk obtaining inaccurate or incomplete information.
- Students will retain more information from various senses and learning styles when they attend classes and also review their notes.
- Let the students know you are concerned about them and the quality of their education.
- A simple statement like I didn't see you in class yesterday, is everything okay, can let the student know you observed the absence and you are concerned.

2. Academic Dishonesty

- Academic dishonesty, as defined in the University of Alberta Calendar by the Code of Student Behaviour, includes several components.
- Check out the exact wording in the General Faculties Policy Manual, in the calendar or on the University of Alberta website.
- Plagiarism occurs when students submit words, ideas, images or data of another person as their own in any academic writing, essay, thesis, research project or assignment in a course or program of study.
- Cheating is defined with several components.
- Cheating occurs when students, in the course of an examination, obtain or attempt to obtain information from another student or other unauthorized source or give or attempt to give information to another student or knowingly possess, use or attempt to use any unauthorized material.
- Cheating occurs when students represent or attempt to represent themselves as another or have or attempt to have themselves represented by another in taking an examination, preparing a paper or other similar activity.
- Cheating occurs when students submit without the written approval of the course instructor, all or a substantial portion of any academic writing, essay, thesis, research report, project or assignment for which credit has previously been obtained by the student or which has been or is being submitted by the student in another course in the university or elsewhere.
- Cheating occurs when students submit any academic writing, essay, thesis, research report, project or assignment containing a statement of fact known by the student to be false or a fabricated reference or source.
- As outlined in the Code of Student Behaviour, penalties for academic dishonesty include expulsion, suspension, academic penalties consistent with university, faculty or department rules, academic probation or reprimand.
- At the beginning of the term discuss what academic dishonesty is, references for it at your institution and how you will deal with it.
- Ensure students understand the difference between plagiarism and paraphrasing.
- Explain to students what material and ideas should be referenced and the appropriate means of referencing.
- Define acceptable collaboration, tutoring and proofreading.
- If you are a GTA and suspect a student has committed an academic dishonesty, talk to your supervising professor or the department chairperson.

- If you are a professor, follow the rules for your department, faculty and university.
- Take measures to prevent or discourage cheating during examinations.
- Find an examination room large enough so students can sit in every other seat.
- Use alternate forms of exams.
- Have enough proctors to monitor the area.
- Require students to bring identification to the exam and to sign an attendance sheet.
- Ask students to place all books and notes out of sight.
- Supply any scratch paper the student may need.
- Maintain adequate security of class records, assignments and exams.

3. Challenging Students

Know it Alls

- Try flattering them by saying, you seem to have a lot of experience in this area, that's great; sometimes they're only looking for recognition.
- Let them give their opinion a couple of times; then say, I appreciate your comment, but we need to move along or it is important we also hear from other students.
- Raise your tone of voice as you move on with the day's agenda.
- Stand up to regain control of the class.
- If they continue to expound on every matter, talk to them alone at a break or after class.

Skeptics

- Smile at them occasionally and encourage any participation at all.
- Do not call on them initially.
- Talk to them at breaks about anything at all to increase their comfort level.
- Usually they are skeptical about the value of a particular course or activity; sometimes their skepticism is rooted in shyness.

Troublemakers

- Separate people who continuously talk by saying you want to energize the group; have them gather their books and arrange themselves in some manner such as by birth months, year in program or by taking sides of an issue.
- Stand directly in front of those students during the class.
- Don't let them take control of the class away from you.
- Ignore their actions, but not them, as best you can.
- Stop talking, look directly at the offenders and wait until they stop talking.
- Talk to them at the break or after class; tell them they may not be aware how distracting and disruptive their actions are.
- If someone continuously disagrees with what you say, feed their behaviour back to them; say, you have disagreed with everything I've said; can you tell me why.
- The crucial point is that you do not attack, or perceive to be attacking, the individual since this might discourage others from participating.

Resistors

- Students will often resist what does not seem relevant or to see if they can get away with not participating.
- You may have to deal with a resistor in class, other times you may be able to delay it to a break or after class; use your judgement.
- Listen, it is important to get as much information as you can.
- Find out what they are resisting; some resistance may be grounded in a person's past,

- Acknowledge you are taking them seriously; maintain eye contact with them and proceed with the discussion.
- Ask questions such as what is your objection or what do you prefer.
- Asking for a preference can make them proactive rather than reactive.
- Avoid questions that begin with why since they evoke a defensive response.
- Phrase questions with what or how to focus on the issue.
- If the entire group is resistant and uncooperative, discuss the issue(s) frankly with them.
- When asking for their input, be prepared to be accepting and not defensive.

Incessant Talkers

- When someone talks on and on, interrupt tactfully, then make a statement to take back control of the discussion.
- Reduce the amount of eye contact with that person to discourage too much participation.
- Allow other students to intervene if they try to get a word in or politely interrupt.
- Listen carefully to what the student is saying and try to tie it to some course concept
- Ask them to summarize their ideas in three or four concrete statements.

Dropouts

- The dropout is the person who just sits there, doesn't say anything, reads or doodles.
- Sometimes just walking up to the dropout is enough to wake him/her up.
- Wait for eye contact, ask a question, then let the dropout off the hook by turning to someone else to answer.
- Speak to the dropout during a break or after class about why there is no participation.

Attackers

- The attackers launch personal attacks on another group member or you the facilitator.
- Interrupt if two group members are attacking each other and get them to talk to you.
- If you are being attacked, resist temptations to be defensive.
- Try leading questions to get a reason for the action.

Students in Distress

- Learn to recognize students in distress.
- They may appear morose and uncommunicative in class, skip classes, turn in consistently poor assignments, or come to talk to you with no real reason for coming.
- Encourage them to talk to someone about their problems, such as a faculty advisor.
- Refer students for counseling to the University Health Services or a student counseling service.

4. Emergencies

- Read the section in this manual on laboratory and classroom safety.
- In any classroom or laboratory, know where the exits and emergency routes are.
- Know where the nearest telephone is.
- Know where the nearest first aid kit is for minor cuts and scratches.
- Know telephone numbers for 24 hour campus emergency (492-5555) and security (492-5252).
- Know how to use a fire extinguisher and what to do in the event of a fire alarm.
- Know how to deal with anyone trying to harm or intimidate another.

5. Sexual Harassment

The University of Alberta does not tolerate sexual harassment involving any member of the University community. If you have any questions or concerns call or drop into the Office of Human Rights.

This is Not Sexual Harassment

- At the University of Alberta, the following are not considered sexual harassment.
- A relationship of mutual consent.
- A hug between friends.
- Mutual flirtation.

This may be Sexual Harassment

- Sexual harassment may occur between employer-employee, professor-student or student-student.
- The University of Alberta defines sexual harassment when the following occur.
- Acceptance or rejection of sexual advances is a condition of your education or employment.
- Acceptance or rejection of sexual advances affects your grades, performance evaluation or any academic or personnel decision that concerns you.
- Unwelcome sexual advances interfere with your work and create an intimidating, hostile or offensive environment
- A fellow student, instructor, superior or co-worker hugs, pats or otherwise touches you in a sexual way that upsets you or interferes with your work.
- A superior offers you a promotion in return for sexual attention, even threatening reprisal if you refuse.
- An instructor promises you a better grade or academic opportunity in return for your sexual attention or implies your academic record will suffer if you refuse.
- Your student offers sexual attention in exchange for a high grade.
- A teaching assistant makes repeated sexual comments or asks you questions of a sexual nature which interfere with your work or concentration.
- Another student or staff member persistently asks you out (despite your answer of no), follows you, corners you in a classroom or in an office and won't leave you alone.
- Your superior persistently uses crude, sexually oriented language which you find offensive, demeaning and inappropriate in a job-related context.
- A colleague tells you he/she will favorably influence your tenure case if you date.
- Sexual harassment can take many other forms.

Avoid Sexual Harassment

- If you feel you are being sexually harassed say NO.
- Some people do not know their actions are unwanted and are taken as harassment
- Describe behaviour clearly and state firmly that it is offensive and unacceptable.
- If the behaviour persists, keep a record of dates, places, times and witnesses.
- Write a letter to the offender identifying the unwanted behaviour and requesting it stop. Keep a copy of the letter.
- Consider lodging a formal complaint.
- Contact the Office of Human Rights to find out how.

Avoid Sexual Harassment Charges

- As an instructor you can avoid possible sexual harassment charges by following appropriate procedures and being aware of potential issues or situations.

- Avoid sexist language in instructional materials, terms of endearment when addressing students and sexual innuendo in class and interactions with students.
- Never use your position power and influence to force sexual cooperation from students.
- It may provide the basis for legal action against you and/or your department and the university.
- Maintain your integrity by establishing a strictly professional relationship with students inside and outside your classroom while you are their instructor.
- Any amorous involvement with a student can be misinterpreted and is not advised.
- It may result in formal action if the student initiates a complaint.
- Even in a consensual relationship, the employee, because of his/her special responsibility will be held accountable for unprofessional behaviour.
- As a GTA you may be in a position to observe sexual harassment by and of the professor or to be harassed by the professor.
- These problems can usually best be handled by talking to the department chairperson.

6. Sexual Discrimination

- Instructors may treat men and women students differently.
- Unruh (1990) discusses many unacceptable practices.
- Relying on sexist humour as a classroom device.
- Making eye contact more often with either men or women.
- Nodding and gesturing more often in response to either men's or women's questions and comments.
- Interrupting comments more often if made by either men or women.
- Addressing the class as if either no men or women were present.
- Calling men students by name more often than women students, or vice versa.
- Ignoring men or women in class discussions.
- Phrasing classroom examples to reinforce a stereotyped and negative view of women's or men's psychological traits.
- Using classroom examples that reflect stereotyped ideas about men's and women's social and professional roles.

7. Dealing with Student Mark and Grade Disputes

- Discuss a student's marks or grades in private, such as in your office.
- For mark miscalculations, ask the student for the paper or exam and retotal, then return it at the next class.
- Ask the student for their paper or exam so you can review it before the student arrives.
- Prepare for the meeting by having your marking scheme and answer key ready, and be prepared to explain it.
- If you made a mistake, apologize and change the mark.
- If the student convinces you the answer is appropriate, acknowledge you had not thought of that possibility and alter the mark.
- To discourage students from casually trying to get higher marks, give them one week to review their papers or exams and if they wish to discuss any marks, they must provide a written commentary on why they think the answer they gave deserves higher marks or was marked inappropriately.
- Tell students you will not deal with mark discussions until the next class or a specified period of time to give them an opportunity to reflect on their answers.

- If a student approaches you with a grade dispute for something you did not mark, do not get involved; tell the student to talk to the person who did the marking.
- If you and the student can not resolve the dispute, meet with the professor if you are a GTA; this will appease the honest student and discourage the one who might be trying to intimidate you.
- Be careful about changing student final course grades except for miscalculations.
- For every student that appeals to you thinking they should have done better, there are more who do not but would be just as deserving of being reconsidered.

8. GTA Problems with Professors

- Talk to the professor with whom you are having the conflict.
- Discuss the problem with another professor whom you respect.
- Talk to the chairperson of your department if you cannot resolve the issue on your own with the professor or you feel intimidated by the professor.
- If students are having problems with the course professor, do not get caught between the professor and the student in these kinds of disputes.
- You can listen to the student to find out what the problem is, then advise them of how they can deal with the problem or with whom they should speak to effectively address the issue.
- It is generally advisable that they talk to the professor, the department chairperson and the faculty dean, in that order.
- If an issue can not be effectively resolved within the department, the GTA may consult the Graduate Students' Association and / or the Faculty of Graduate Studies and Research for advice.
- Be aware of procedures set out in the Regulations Governing Graduate Assistantships for the resolution of GTA disputes.

XI. FEEDBACK FOR EVALUATION

1. The Importance of Feedback and How to Use It

Major forms of feedback or assessment for you as an instructor include self, student, supervising professor, colleague, other professors whom you respect or the department chairperson. Reviewing students understanding and impressions of your lecture or class is one of the best ways to identify areas for improvement.

2. Feedback from Yourself

- Keep a teaching journal or set aside a time each week to think about your teaching; it only takes a few minutes.
- Write about how you feel about the lecture/lab/discussion session; do you feel optimistic, good, satisfied that you accomplished your objectives; do you feel weighed down by too much marking or student discussions.
- View a videotape of yourself, consider your facial expression, movement, voice, appearance, gestures and body language.
- Develop a teaching dossier, a summary of your major teaching accomplishments and strengths.
- The teaching dossier is intended to provide selected short descriptions that will accurately convey the scope and quality of the instructor's teaching (Shore et al. 1991).
- The teaching dossier includes material from yourself, colleagues and students such as your philosophy on teaching, student evaluation summaries, steps taken to reflect on and improve your teaching.
- Start a teaching dossier early on in your career; it is a lot easier to collect information and material as you go along rather than try to collect it all at one time later on.

3. Feedback from Students

- Listen to comments from students.
- Do student comments tell you they enjoyed the lecture or class; that they learned something; that they made a breakthrough because you broke through.
- Do student comments tell you that you helped them develop an interest in the topic.
- Are students often telling you to slow down or repeat something or speak louder.
- Do student questions or lack of questions give you clues about their understanding of the material.
- Do students comment to each other in class or as they leave what did he/she mean by that; did you get that last bit, what are we supposed to do.
- Watch students; do they seem alert and interested in what you are saying or doing; are they dozing, looking out the window, talking to other students, doodling, fidgeting, coughing, reading.
- Are students so busy writing notes, they're not really paying attention to what you are saying.
- Do students often look at the clock or their watches.
- Note student eye contact, facial expressions of understanding, confusion or boredom.
- Critically examine student assignments and exams to determine if they are answering questions and doing their work in a manner that indicates they have absorbed knowledge from your class.

- Are too many students missing simple concepts or questions on an exam.
- Are too many students not turning in assignments in the desired format.
- Ask questions of students in class to get information on whether they are understanding.
- Ask students to give examples or summarize main concepts.
- Set up a suggestion box in the classroom or outside your office and ask students to use it often to help improve the class and particularly your performance in it.
- Ask for structured feedback, perhaps through questionnaires.
- While formal student course evaluations are most often given at the end of the course, you can periodically do mini evaluations to get feedback in the middle of the course, or at some other critical point in the learning process for that course.
- Take student comments seriously, thank them for the input and discuss issues or concerns and possible solutions with them; often they have good ideas on how to eliminate or fix a problem.
- Borrow student class notes to see how well you are getting your points across.
- Have students turn in class notes as an assignment.
- Assign minute papers at the end of a class period; possible questions include what is the most significant thing you learned today, what question is upper most in your mind at the end of today's class.

4. Feedback from Colleagues

- Ask a colleague to sit in on your lecture or class; how does he/she react to your presentation; what are your strengths and weaknesses; what compliments and suggestions are offered.
- The University Teaching Services has a peer consultant program; if you prefer being given guidance by someone you do not know, this may be an alternate approach to having a colleague into your class.
- Ask a friend, whose opinion you trust, to provide feedback on your class; even though he/she may not understand the material covered in the class you can get good information on your presentation style; you may also ask her/him to observe student behaviour to determine whether he/she thinks the students are interested in and comfortable with you.
- Ask a colleague to interview a group of students from the class on how the course is going.
- Set up an evaluation team with a few colleagues; you can develop your teaching and enjoyment of teaching by agreeing on periodic checkpoints during the term; early in the term, arrange specific dates on which you will visit each other's classes and discuss your reactions and recommendations.
- Join a teaching cell where you can share ideas with other instructors interested in teaching.

5. Feedback for GTAs from the Supervising Professor

- Your supervising professor can offer good comments on your performance in a manner similar to that obtained from colleagues.
- Tell your supervising professor to be frank with you as you really want to learn from their comments and suggestions.
- The supervising professor is the best person to offer comments on class content, academic merit, level of complexity.

XII. TIME MANAGEMENT

1. Time Related Difficulties

As a university instructor, a common problem is feeling there are never enough hours in a day for research, teaching, marking, family and community life. It is important to fill each day to the brim, but with a good mixture of things that are important to you. Ben Franklin said, "Doth thou love life? Then do not squander for that's the stuff that life is made of." Some common time related difficulties and tips to deal with them follow (Douglas undated).

Perfectionism

- Perfectionism often prevents people from feeling satisfied with what they have done.
- It often prevents them from doing many things because, if they can't do them perfectly, they won't do them at all.
- Stop whenever you engage in all-or-nothing thinking or talking.
- Stop whenever you over generalize from a single negative event such as I'm always making mistakes; I never learn.
- Be less critical and more accepting of yourself and others.
- Stop yourself when you unnecessarily use "should language" about yourself or others in internal or external dialogues; he should have done it differently; I should be sure to say the right thing here.
- Reward yourself for what you did well, rather than punishing yourself for what you did not do well.
- Set realistic, intermediate goals rather than impossible, unattainable ones.
- Break major projects into smaller manageable parts; I'll write the introduction to that paper today, rather than, I have to write that paper today.
- Be satisfied with sometimes just getting the task done even if it is not done perfectly.
- Be conscious of how far you have come rather than how far you have to go.
- List advantages and disadvantages of being perfect; is perfectionism worth it.
- Strive to do your best; accept what you have done, for now.
- Learn from each effort what to improve the next time.
- Perfectionism often means you do not delegate or work well with others because you can not trust them enough to not do the work yourself; learn to let others do their parts and accept it may not be done the same way or even as well as you would do it,

Goal Planning

- Goal planning is necessary to deal with chronic overload and lack of time.
- Many people do not plan because they believe it limits freedom, they are too busy putting out fires (crisis management) or they don't think they have time to plan.
- Planning does not reduce spontaneity and freedom but enhances it.
- Planning gives you time to enjoy life rather than running from one crisis to another.
- Enhance your planning by having a list or time log.
- Determine your priorities in terms of short and long term goals.
- Be realistic.
- When planning your day, set realistic goals and leave time for the unexpected.
- Schedule things that must get done; then fill in time spots with things you would really like to do.
- Don't get caught up in doing all the little jobs that you just want to get out of the way.
- Do some odd jobs when breaking from major projects, when waiting for an appointment, when there isn't enough time to start a major task or while waiting for lunch or class.

- Take moments in your day for revitalization.
- Relax in the sunshine while eating your lunch rather than reading another paper or writing another few pages.
- Walk around campus to clear your mind after completing a major job.
- Personal rejuvenation time doesn't mean you are wasting time; you will be more relaxed and work more effectively when you return.

Procrastination

- Procrastination keeps you from getting things done as you waste time thinking about what you should but don't want to do.
- Procrastination weighs you down as you trek through life with too much mental baggage.
- Do small unpleasant tasks first and get them out of the way; you'll feel less stressed.
- Break large unpleasant tasks into small units and set deadlines for completion of each part; stick to your schedule.
- Reward yourself for completing unpleasant tasks.
- Prioritize jobs so you know what you are doing is important for that point in time.
- Recognize when you are procrastinating and have specific small jobs or parts of large jobs to do at that time of recognition.

Dealing with Factors Seemingly beyond your Control

- It may seem your time is controlled by factors beyond your control.
- Drop in visitors can be an uplift in your day or the last thing you need.
- Be gracious but honest with visitors.
- If the visitor is from out of town perhaps you can spend a half hour or so; if you decide to do this, do it without guilt, take the allotted time and enjoy it.
- If you really cannot spend time with the person or don't want to, tell them your schedule does not permit it, spend a few minutes being sociable, then get back to work.
- If you really cannot be interrupted, put a do not disturb sign on your door; hide out at the library; work at home.
- Ignore the telephone and email sometimes.
- Schedule specific times to answer telephone and email messages rather than responding to them as they come.
- If you are concerned about not answering the telephone because of emergencies, leave an emergency number on your answering machine.
- Invest in call display to help screen important callers.
- If it is an emergency, people will get in touch with your department office.
- If you have a cell phone, give the number out only to those that really need to have it.
- Use time in lineups to relax, watch people, think, read a book, do nothing, make lists, write notes or cards.

2. Ways to Save Time

In Course Work

- Do course related work only on class days.
- Schedule an hour or half an hour after each class to get ready for the next class while everything is still fresh in your mind.
- Make exam questions and assignments throughout the course, such as when preparing for class.
- Keep a file for each course and put notes, ideas and resource material into the file as you get them.

- Set specific student office hours for each course you are teaching.
- Compile a test bank and rotate questions.
- Schedule student interviews at the end of the day and demanding tasks like writing for when you are fresh.

Administrative Work

- Get an answering machine or have a secretary take telephone messages; return your calls when it is convenient.
- Schedule short office hours for times when you are generally less productive.
- Keep form letters on your computer for routine mail.
- Establish an agenda for meetings and stick to it.
- Make sure the meetings you call really need to occur; determine if some of the work can be done via email or teleconferencing.
- Whenever possible, handle each piece of paper and email only once.
- If you can not deal with a piece of paper immediately, attach a sticky memo listing deadlines, where to file or what needs to be done.
- Use uninspired times to deal with mail.
- Do not let mail pile up.
- Reduce time on the telephone by using verbal cues to keep people on track.
- Put minor duties and correspondence in a pile and deal with it at a scheduled time.
- Learn to say no and not feel guilty.
- Clean your office once a week and keep everything in labelled files; you would be surprised to find how much of your time is spent looking for something.
- If you are meeting with someone who always takes more time than needed and is difficult to end a session with, have a secretary or colleague knock on your door and remind you that you need to be moving on to something else; set meetings with these people when you have to legitimately be leaving for another meeting or appointment so it is easy to excuse yourself and go.
- If you have staff working with you, learn to delegate appropriately rather than feeling you need to do everything yourself.

Research Work

- Write ideas for research down as they come.
- Schedule time for writing each week.
- Schedule regular time to meet with research staff and graduate students.
- When writing, work at home or some other private place and do not answer the telephone or email.
- Learn to use small blocks of time to write rather than waiting for the large block of time that you can never find.
- If you write the introduction to your paper, that's a start.
- Schedule lab and field time so you are not always thinking about when you might be able to fit it into your schedule.
- Keep files for new research ideas in the different areas you work in; add information and ideas to the files as you find or think of them.

3. Internal Messages to Help Deal with Stress

- This too shall pass.
- Look how far I have come; even if I am not doing so well now, I am still moving forward.
- Will it really matter in fifty years, next year, next week.

- I cannot always control everyone and everything around me and I need not expect to.
- I know I am not helpless; I can and I will take necessary actions to pull me through this difficult period.
- Don't sweat the small stuff.

4. Success for New Faculty

Researchers studying new faculty members found that the highest priority as teachers was to get to the point where teaching no longer took as much time to prepare or as much emotion to conduct (Theall and Franklin 1991). One result of this pattern was busyness and stressfulness and a growing aversion to teaching as an activity that took too much time and paid too few rewards. The key ingredient found in new faculty who succeeded was time management to provide balance among teaching, research and other service.

- Quick starters tended to show similar relatively unique tendencies.
- They lectured in a facts and principles style but in a comfortable fashion that allowed time for student involvement.
- They included verbal and non-verbal cues that encouraged students to participate.
- Class preparation time was reduced once they dealt with the tendency to write everything out.
- Reducing the amount of writing for a class was often mastered on a leap of faith, going into the class without points completely written out and with the main goal to be spontaneous but clear in presenting material.
- They verbalized uncritical, accepting and optimistic attitudes about the undergraduate students on their campuses.
- They displayed low levels of complaining and cynicism about supportiveness from and competence of their campuses and colleagues.
- They showed a disposition to seek advice about teaching from colleagues, reading, observing and faculty programs.
- They evidenced quick transitions away from spending the bulk of time on teaching preparation.
- They produced a documented balance of time expenditures among academic activities so that by the second term at least three hours per week were spent on scholarly writing.
- The importance with writing was to move past the perception about the need to find large blocks of uninterrupted time for writing but to try writing in brief daily sessions.
- They integrated their research and scholarly interests into undergraduate classes, resulting in enthusiasm for teaching and recruitment of students as research assistants.
- They displayed high energy, broad interests, concern with self preservation and a sense of humour.

XIII. SELECTED BIBLIOGRAPHY

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