Frederick Community College   January 2000

Web Courses
Standards of Best Practice

I. Definitions

1. The purpose of this document?

     At Frederick Community College the initial experiment with the first set of handcrafted WebCourses is   coming to an end. In a second phase of developing an on-line presence, the College is now at a point

     - where a larger number of such courses could sensibly be offered,

     - where such courses need to be considered in a geographically and institutionally wider context of MCCT or MOL,

     - where such courses at FCC, bundled with WebCourses from other colleges could be configured into on-line degree or certificate programs.

At this juncture,   the current variety of individual approaches to on-line instruction must be channeled toward a shared understanding of the pedagogy and organization of WebCourses. This document is designed to articulate a set of pedagogical and organizational standards for FCC's on-line courses. In doing so the intent is not to regulate, but to affirm the need for evaluation   and to provide a base line for the peer review mechanism that is mandated to guide the development of FCC's on-line courses.

2. What kind of WebCourse?

     WebCourses come in all sizes and configurations; the variations range from the companion web site supporting   an on-campus course to the almost fully automated, self-paced skills course which prepares the student for some professional exam and which he/she can begin and complete any time. For the purpose of this document we will concentrate on a set of standards for a type of course which is truly and completely a WebCourse on the one hand and is not primarily associated with training, drill practices or pure memorization on the other. We define this type of course in five ways:

a. The course is accessible anytime, anywhere via the INTERNET and a Web browser with little or, in most cases, no face-to-face communication.

b. The primary delivery mode of the course is asynchronous, not excluding the possibility of a chat-room component, office hours on-line or the like.

c. The course has a theory component, enhances critical thinking skills and requires the sharing of ideas among all partners involved.

d. The course, and consequently the standards governing the design of such course, aim at the average spectrum of the student   body and are NOT focused on a select clientele such as "the mature, independent learner".

e. The course is taught over a given period of weeks with a beginning and an end set in such a way that a cohort of students works on the same or a similar theme within the same time frame.

In this document this type of course will be referred to as "on-line course". The standards offered here may have to be adjusted or modified for other formats of Web courses, such as self-paced courses or courses preparing for professional exams.

3. What is *Best Practice*?

     Generally speaking, the development of on-line courses while evolving rapidly, is still in its infant

stages. On a larger or smaller scale, everybody, institution or individual instructor, is experimenting with some technical or design aspect of his/her on-line course. Is there such a thing as *Best Practice*? At best, the concept of *Best Practice* generates broad and general statements of what should be improved for tomorrow, based on what selective knowledge we have today. Yet, *Best Practice* policies are also essential to guide and   refine the ongoing experimentation and lead to better practice. In the context of this document *Best Practice* is a construct with four ingredients:

a.   A still mostly anecdotal knowledge of the success and problems with on-line courses in American or European colleges and universities; a few good local studies not withstanding, hard data are hard to come by;

b.   A reasonably clear understanding of our own experience, yet insufficient supporting data from the few courses that FCC has put on its schedule so far;

c.   More or less informed projections of how, how rapidly, and in which direction Web technology will evolve;

d.   A set of sophisticated and well-researched learning theories that determine the basic parameters for creating an on-line learning environment.

It is evident that the construct of *Best Practice* is a moving target. What counts as *Best Practice* today cannot, and hopefully will not be *Best Practice* tomorrow. The first *Best Practice* recommendation is to thoroughly review *Best Practice* at least every two years. In this document we will refer to *Best Practice* as *"Best Practice00"* to indicate the current year and number of the base version which will be superceded by *Best Practice01* and *Best Practice02* in the near future

4. Who is the designer/instructor?

A faculty member who wishes to teach an on-line course typically designs the environment, methods, and resources for the effective teaching/learning of specific goals and objectives. At this stage in the general evolution of on-line teaching in smaller and medium institutions, course instructor and course designer are often one and the same person. The question as to what degree the faculty member gets involved in the technology aspects of creating the course website is another matter.

For the purpose of determining instructor load and compensation, however, the task of designing an on-line course must be distinguished   from the task of teaching it on a regular basis.   The design phase of the course typically ends with the end of the first trial semester of teaching it. After that, the function of the instructor includes the normal activities of updating course content, website maintenance, guiding class discussion, grading, general administration etc.

II. Guiding Pedagogical Principles

Over the past decades, many colleges and universities throughout the country have implemented a shift in the teaching/learning paradigm away from a lecture-based class room experience that delivers to the student a commodity called 'knowledge', toward a more active and cooperative venture that turns both teachers and learners into interactive partners in the teaching/learning process.

This paradigm of   COOPERATIVE LEARNING has been used optionally in the traditional on-campus classroom setting. For the complete on-line course today, it provides the only viable conceptual framework for understanding and designing   the teaching/ learning process. There are two reasons for that. One is that on-line courses are not taught in a physical classroom with the built-in face-to-face

interaction. The second one is that streaming audio/video technology (which aims at bringing face-to-face interaction on-line) is not sufficiently advanced and disseminated to make it a viable tool for the average user. Accordingly, the on-line course today cannot but break with the tradition of lecture presentations. In order to keep students involved and to advance the learning process, the designer of the course must develop alternative structures for it while the instructor is forced to adopt different teaching techniques.

Experts tell us that streaming audio/video technology will in fact come soon to the average user and will bring face-to-face interaction on-line. When that time comes, hopefully, the paradigm of COOPERATIVE LEARNING will have generated some fundamental pedagogical standards for on-line teaching and learning which will prevent us from using the audio/video technology to fall even deeper into the trap of 'talking heads'.

In order to give guidance to the necessary experimentation with asynchronous instructional technologies today, and in order to address valid objections that have been raised against on-line teaching and learning, standards of best distance learning practices must be made explicit and must be shown in their relation to some clearly articulated pedagogical principles.

From research and practice in the field of cooperative learning, three such principles have emerged with a fairly standard designation of "interactivity", "intervention", and "active learning".

1. Interactivity

When learning is viewed as an intrinsically social process between students and teacher, interactivity becomes a core principle in developing standard practices for courses in the traditional class room setting as well as for online courses. In both settings the goal is to structure maximum opportunities for interaction between students and teacher, among students, and between students and the course material.

In an on-line course in particular, students are connected to the instructor by some medium, and must receive feedback and encouragement, as a way to maintain interest, attentiveness, and commitment to the course. This is especially true for those students in on-line courses who do not fit the profile of the "independent, self-directed learner" and who have had and/or continue to have most of their educational experience with teachers and classmates present in a traditional classroom setting.

2. Intervention

In the on-campus classroom, there are two areas in which the instructor typically intervenes or "mediates". One is the mediation between the student and the subject matter; in this area it is traditionally the lecture mode that enables the instructor to guide the learning process toward particular outcomes and to connect a body of knowledge and insights with a student's cognitive competencies. The other area of intervention involves the practice of synthesizing and summarizing student discussion.

Currently there is no opportunity for the instructor of an on-line course to use the traditional lecture method that introduces students to the subject matter of the course in general or to weekly reading materials in particular. Since streaming audio and video technologies are not yet available to the average consumer/student, they cannot be used to accommodate "in person" lecture components in the INTERNET course. Furthermore, in the on-line course setting discussions are not conducted face-to-face either. Consequently, the instructor must develop some other mediation strategies in both areas.

Typically the instructor of an on-line course wants to work with a set of questions that are carefully designed to weave instructor/student exchanges into a tapestry of learning outcomes. In this exchange new

ideas are applied to a familiar context and, in a process of assimilation or accommodation, the student is guided toward a new or revised way of conceptualizing an idea or issue.

This guidance is of   particular importance for the student in an on-line course because of it's primarily asynchronous nature. In an on-line discussion, for example, items are submitted at different times and in a non-sequential manner, resulting in a larger or smaller number of loose threads that need to be tied together and synthesized in order to clarify the learning outcome. Moreover, instructor guidance is crucial because it validates and reinforces the student, and in that, encourages his/her sustained participation in the class.

3. Active Learning

While the principle of intervention addresses the "teaching" part in the teaching/learning process, the principle of active learning characterizes the "learning" part. The active learner "learns by doing", i.e. he/she must engage in activities that enhance comprehension, understanding, and knowledge.

In an on-line course all interaction occurs "in writing". For this reason alone, writing is one of its most important activities. Here writing serves two purposes: the purpose of communicating with others and the purpose of self-clarification. Under the pressure of having to formulate precisely what we want another person to understand, we write something down and in doing so we clarify for ourselves what it is that we want to say. The second reason why writing is so important is that it relies upon and at the same time fosters an active rather than a passive learning style. Writing is not a simply copying thoughts in audio format on to paper, rather it is a "complex process of discovery". Apart from courses in English Composition, the on-line course is probably one of the better practice fields for any Writing-Across-The-Curriculum program.

Because of its primarily asynchronous nature, the on-line course is not segmented into 50 or 75 minute sessions per week and therefore provides opportunities for a significantly higher level of active student engagement with the instructor.

III. Pedagogical Standards of Best Practice

1. Instructor training.

The on-line course presents a number of fresh challenges to instructors with the   traditional classroom teaching experience. First and foremost among them is the need to shift from a linear, consecutive text presentation (lecture mode) to a technique of non-linear question and response patterns without jeopardizing the learning outcome. To apply such techniques successfully is difficult enough; it is further complicated by the almost totally open-book environment of the course. In formulating a response to the instructor's question, students have the option of simply copying any text they wish. The formulation of the instructor's question must guide the student away from pre-fabricated answers. The first-time instructor of an on-line course should not assume, nor should the College, that such techniques of asking higher order questions can be mastered without preparation and training.

In any discipline other than English, a second challenge is presented to the first-time instructor of an on-line course who has good writing skills, but normally has no background in teaching the elements of writing. The challenge is to enhance students' writing skills without turning the course into an English Composition class. This challenge has always existed in the traditional classroom setting, it is, however,

magnified in an on-line course because writing is the only mode of communication even in the less formal setting of an asynchronous discussion or the least formal exchange in a chat-room.

- *Best Practice00*   recommends that the College offer training opportunities in both areas to instructors of on-line courses. Instructors are urged to take advantage of such opportunities.

2. Initial Contact with Students

In order to avoid frustration and misunderstandings on the part of the student, *Best Practice00* would urge the instructor to connect with students at a time much earlier than is customary in the case of on-campus classes in a traditional format. Prior to the beginning of the on-line course the contact with the student typically evolves in three phases:

a. The student reads the course description in the semester schedule.

Best Practice00 would urge that the published course description answers the following questions for the student: What is the topical area of this course? What are the course requirements? What are the technology requirements I must meet to complete this course? How will I know when the course begins? How is an INTERNET course taught? Can I browse the course website to see what it looks like?

It should not be assumed that every student has read the course description in the semester schedule, most of them do, some do not. *Best Practice00* recommends

- that the registration form include the student's e-mail address
- that at the time of registration the student is given an information sheet about the course covering the above questions
- that the student should be given the opportunity to browse part of the course website, at least the syllabus, to form an impression of content and functionality
- that courses behind the total password protection of software package, such as Blackboard or Webct, put up a cover page with the syllabus and the necessary information outside of the password protected area.

b. The student is registered and is waiting for the beginning of the course,

- *Best Practice00*   would recommend that students enrolled in the class receive a welcome e-mail letter from the instructor prior to the beginning of the semester providing them with a basic course outline, information about how to access the course and use the particular software/ groupware, as well as information about contacting the instructor with any concerns or problems.

c. Some students register late.

In an on-campus course setting, the student registers late, shows up in class, and the instructor automatically updates the class roster. In the on-line setting, late-registering students will have been told at the time of registration to contact the instructor by e-mail indicating that they have successfully connected to the course. However,

- *Best Practice00* would suggest that additional communication between the registrar's office and the instructor may be required during the first week of the on-line course to make sure that the instructor has a daily update of the class roster. This is of particular importance when students from other colleges enroll in the class.

3. Who-is-Who in the class?

To promote a sense of community among the students and to eliminate the anonymity that characterizes so may activities on the world-wide-web, *Best Practice00* recommends that every web

course should provide an opportunity for students to introduce themselves to each other. *Best Practice00* would also recommend that students are asked to post to a specially designated page a personal profile that gives them the opportunity to discuss the reasons why they are taking the course, what concerns they have, what they expect to learn, etc. Apart from the text and the name of the student, it should repeat the student's e-mail address to encourage student-to-student contact (see 4c below).

4. Electronic Mail

Besides discussion items and/or assignments posted directly on the website, e-mail communication is the other, most frequent form of interaction between student and instructor. Its quality profoundly influences the relative success of the teaching/learning process in an on-line course. Using and organizing the e-mail traffic is not just a technical, but an eminently pedagogical task. It is as important for the transfer of short messages as it is for sending and returning essay assignments. In addition, the proper organization of the e-mail traffic is vital because e-mail is the primary means of direct interaction among the students in the class.

a. Messages

One of the most important issues in the interaction between students and instructor is the turn-around time for student e-mail messages. While it is obviously desirable that the instructor respond to the student almost immediately, more important for the student is the predictability of when the response can be expected.

- *Best Practice00* would recommend that the instructor, as a rule, commit himself/ herself to an average turn-around time of 24-48 hours for regular student e-mail messages. Students should be notified in cases of illness or absence when the instructor will not be able to respond to messages for any length of time.

b, Written assignments

The instructor may prefer to receive multiple page student assignments by e-mail. Since not all e-mail formats are compatible and not all word processing software converts every text format,

- *Best Practice00* would suggest that it is probably safer to avoid attachments and stipulate that text be pasted into the e-mail. This procedure has the added advantage that in replying to the student's submission instructor comments can be inserted into the student's text.

c. Student-to-student e-mail

While student-to-student e-mail communication is highly desirable for pedagogical reasons, the reasonable protection of students' privacy within the class is important as well. In a situation where students have not "met"each other face to face, some students may not feel comfortable with having their e-mail addresses routinely, and without their consent, made available to the rest of the class.

- *Best Practice00* would encourage the instructor to acknowledge that these feeling might exist and to suggest that the student can acquire a free e-mail address for the purpose and the duration of the class.

- *Best Practice00* would encourage student-to-student e-mail communication in every way possible and, in the case of group activities, it should be required. For this purpose, an "easy click" list of all student e-mail addresses should be available to every student in the class.

5. The Course Syllabus

For the on-line course the syllabus does not have the same defined function that it has in the

on-campus class. Crucial information traditionally assembled in the syllabus may be spread out over different parts of the course website depending on the organization of the site. Typically, students have learned to expect a syllabus for a course and may even be used to a particular look-alike format across the campus. For this reason alone it may be advisable to retain in the course website some of the traditional features of a syllabus, particularly the core learning outcomes. The second reason is that many students in on-line classes prefer to work with print-outs, and the syllabus is the first thing they want to print out. Therefore

> - *Best Practice00* recommends that a print-out version of the syllabus be available from the website (see III,2,a).
> - In cases where the textbook does not list detailed learning outcomes, *Best Practice00* also recommends that the instructor formulate such learning outcomes so that the student may know precisely what is expected.

6. The Discussion Component

A well structured discussion component is arguably one of the most important features in the on-line course. The chat-room technology offers a variety of options with one common advantage: the synchronous presence of participants in a virtual "classroom". Depending on the number of participants, disadvantages emerge, for example, the pressure to write in sound bites is more or less strong. Everybody has to wait until one person has typed a sentence. The other problem with using the chat-room for instructional sessions for the whole class is need for the student to be present at a given time. One of the reasons why students take an on-line class is precisely the perceived advantage that they do not have to be anywhere at an appointed hour. It is probably more useful to use the chat-room for self-organized, smaller study groups in the class.

The asynchronous discussion page is better suited for the exchange of contributions on a given topic. The advantage is that the time frame is optional and the student contributions can be longer and are usually more thought out. In addition, the structure and the flow of the discussion can be made to appear in almost graph format which enables the student to make his/her contribution at one "point" of the discussion while inserting a response to another student's contribution at another "point" of the discussion. This format makes it easier for the instructor to respond to one student mor thoroughly and have the rest of the class read and use it; it is also easier to identify loose threads and synthesize various contributions into a mini lecture.

> - *Best Practice00* recommends that for the purpose of guiding discussions for the whole class the asynchronous discussion page should be explored as a suitable instrument.

7. The Assignment Calendar

The on-line course caters to students with different work styles in the on-line environment. Some students are primarily web-oriented; they go on-line, straight to the relevant part of the course website every time they "work on the course". Others are primarily e-mail-oriented: they work with print-outs as much as they can and visit the website only when necessary. Both groups are looking for an easy way of keeping track of the course on a week by week basis. Both seem to agree that it is important to have ready access to a weekly or monthly calendar with assignments, deadlines and test dates for the on-line course. The first group appreciates links to assignments or tests build into the calendar; the second group is interested in getting a reasonably looking print-out of the calendar.

      - *Best Practice00* recommends that the on-line courses cultivate a printable calendar feature on the website
      - *Best Practice00* also recommends that the on-line courses feature printable and detailed assignment pages for each week or other suitable time period.

8. On-line testing

      Testing practices in on-line courses vary wildly. Some instructors work only with on-line graded assignments and/or exams; some others stipulate that at least one exam taken during the course require a picture ID of the student. In deciding which practice to follow it should be remembered that testing practices have a direct bearing upon the public perception of the integrity of the College as a degree awarding institution. The question is not simply whether the instructor really knows the person who is actually taking the exam or writing the assignment, the broader issue is the accountability for the integrity of the teaching/learning process on the part of both instructor and student. Apart from the proctored test for courses that do have exams, Academic Honesty codes have traditionally been accepted as a good and effective framework for exercising such accountability.

      - *Best Practice00* recommends that in on-line classes that do not feature a proctored test environment the student must be required to formally acknowledge and pledge adherence to FCC's Code of Academic Honesty published in the Student Handbook.

IV. Technical and Organizational Standards of Best Practice

1. Instructor's Technical Qualification

      In his/her capacity as course designer, the instructor should be familiar with design tools, i.e. with the particular courseware package which the College has chosen. Another issue is universal accessibility, i.e. access for sensory impaired students. Since the technical skill required to make web sites universally accessible is not something the beginning course designer is likely to have, (or even be aware of the necessity for), it thus should be a component in the training received (see VI.3.).

      The instructor cannot and should not be expected to replace technical support personnel for the on-line course; nor should the instructor be expected to respond knowledgeably when a student's computer breaks down. However, there are some minimal technical qualifications that the instructor must possess for the course to progress smoothly. Such qualifications include familiarity with all operational aspects of the soft/courseware; knowledge of problems that could occur and where to get help to fix them; familiarity with all technical operations which the students are asked to perform such as posting a text on the course website or downloading something from the INTERNET, knowledge regarding virus protection, etc.

      - *Best Practice00* recommends that the College offer technical training opportunities to instructors of on-line courses. Instructors are required to take advantage of such opportunities.

2. The Design of the Course and Time/Load Issues

      To mold the various pedagogical requirements of the on-line teaching/learning process into the coherent whole of a course is one challenge. To meet this challenge within the time constraints of a reasonable work load for the designer, instructor and student of a particular on-line course is yet another issue. Anecdotally, first generation designers, instructors and students who, although they enjoyed it,

nevertheless report spending extraordinary amounts of time on the course. What counts as *'Best Practice'* here equals   the most appropriate and balanced compromise between several major factors which intertwine to make the course more or less time consuming for either of the partners.

a. Designer workload

Not counting the time it takes to learn the authoring software and to familiarize yourself with the basic principles of on-line instruction, "design"is defined as designing the environment, methods, and resources for the effective teaching/learning of specific goals and objectives in an on-line course. Within the parameters of this definition, research on the design and development of distance learning programs established a benchmark ratio of 18 hours of on-line course development for every hour of instruction. Adjusting the ratio to other support factors such as training or the availability of discipline-specific web components packaged by publishers and keeping in mind that the design phase ends after the first trial semester of teaching the course.

- *Best Practice00* recommends to provide 6 credits of release time for the design of an on-line course (or 3 credits of release time plus the regular compensation for the trial semester) .

b. Instructor workload

After the first trial semester the function of the instructor includes the regular activities of communicating with the students, updating course content, website maintenance, guiding class discussion, grading, general administration etc.   Within these parameters, the frequency of   e-mail exchange is the first that comes to mind among those factors determining the amount of instructor time. The volume of traffic is determined by the number of students in the class as well as by the format of the traffic. Other factors which are controlled in the design of the class include the frequency and duration of guided class discussions, the relative number of shorter or longer writing assignments that require written feedback and grading and the amount of material covered in the given time frame. These in turn result from a compromise between what is pedagogically ideal and what is a reasonable amount of time that a student can be expected to spend working on the course.

c. Student workload

Typically, the 3-credit on-campus course is configured at a total of 135 work hours (45 contact hours plus 90 hours for preparation, out-of-class assignments, and exams). Usually the majority of the 45 contact hours are structured by the instructor while the question whether or not, and how the student spends the majority of the 90 "support" hours are left at the student's discretion. Competency exams at regular intervals test whether the student has put in "enough time".

Deprived of 45 face-to-face contact hours and the option to lecture in regular weekly class sessions the first-time designer/instructor of the on-line course will have the tendency to make up for the loss of time in order to maintain the quality of the teaching/learning process. He/she will most likely be fascinated with the myriads of research and learning opportunities that the INTERNET has to offer for their course. As a result he/she will tend to increase the number of student assignments and at the same time underestimate the time it takes the student to complete such assignments on the INTERNET. To retain a baseline of 135 hours per semester to compute a realistic student workload seems reasonable.

d. Class size

Many college administrators had hoped to boost cost effectiveness with large on-line classes that would require no air-conditioning or heat and make very few demands on other campus services. The hope has not yet met reality and may not meet it in the future. The major reason is that the highly interactive on-line courses require considerably more per-student contact time from the instructor. At present, the general consensus seems to be that 3-credit on-line courses are best capped anywhere between 15 and 20 students, if the instructor is to be compensated at the same rate that apply to on-campus classes. However, this may not apply to highly automated training courses or self-paced courses. It may also change depending upon emerging practices with regard to other relevant factors such as audio/video technology.

e. Balancing the factors
- *Best Practice00* recommends to cap a 3-credit on-line course per instructor at 12 students   for the first and at 18 students for the following semesters.
- Capping the course at 18 students, *Best Practice00* recommends to retain the measure of a 3-credit instructor workload.
- *Best Practice00* recommends to retain a baseline of 135 hours a semester to compute a realistic student workload for the design of a 3-credit on-line course.

3. Virus protection
During the course of an on-line class many hundreds of files are uploaded to or downloaded from the course website or are passed on through e-mail. The possibility of an virus infection cannot be altogether eliminated, but it can be minimized. *Best Practice00* recommends
- that all students in the on-line course be asked and be shown how to run repeated virus checks on their computers during the semester.
- that technical personnel responsible for the operation of the server maintain a schedule of frequent virus checks specifically in view of the interactive nature of the on-line course.
- that the College formulate a disclaimer stating that while the College will protect its websites from computer viruses as much as possible, it will not take responsibility for any damage from viruses downloaded by anyone from one of the College's   course websites.

4. Technical Support
There are four places where technical glitches can and do occur interrupting the smooth functioning of the on-line course: The college's webserver or intranet, interactive components of the course website, the connection to the student's INTERNET provider (AOL, Erols etc.), and finally the student's home computer. From the point of view of technical support only the first, second and last are relevant in this context.
a. College Server.
On-line courses do not fit into regular working hours. Typically, student hours logged in on-line courses peak very early in the morning, in the late evening hours, and on weekends.
- *Best Practice00* would recommend that in case of failure either of the server or in the functioning of the particular website reasonable emergency support services are available from 5 -12 am to both the instructor and the student.

b. Student Computer

On-line courses rely on a constantly evolving technology that reduces yesterday's accomplished master to today's beginning novice. In between the advancing technology and his/her personal skill level, over the course of the semester the average student user, particularly the non-traditional age student user, will encounter situations that are generically summed up in the statement "My computer acted up". These situations, though not precipitated by the on-line course, do occur in the working context of the course and influence the student's perception and evaluation of it. While it is clear that neither the instructor nor the College are in a position to assist the student with these problems, it is also clear that the student needs some help to do the work.

> - *Best Practice00* would suggest to organize a technical self-help system among the students. Most classes have at least one or two computer "geeks", many of those have been known to take pride in their abilities and are willing to contribute to the progress of the class by helping other students.

5. Sending Student Grades

Should student grades be posted on-line or sent by e-mail? There are advantages and disadvantages to both. Most courseware packages include a password-protected feature that lets the student access his/her grades on-line. Some packages even transfer grades from particular assignments, such as on-line quizzes, directly onto the student's grade page. The disadvantage is that instructors typically in addition to this on-line course teach other classes that cannot be integrated into the particular courseware package. As a result the instructor cannot without duplication keep just one grade book, electronic or paper, for all his/her classes.

E-mailing grades is fast and easy for student and instructor alike. The potential problem, however, is privacy. While posting grades on-line usually implies password protection for each individual student, e-mail technology does not offer the same protection. Furthermore, many students use their e-mail at work for the on-line course and might feel uncomfortable with the idea of letting the employer/coworkers see their grades. The privacy problem comes into focus when existing college policies for the on-campus setting are applied analogously to the on-line course. In order to protect student privacy, college policy, for example, prohibits the on-campus instructor from identifying students by the last four digits of their social security number when grades are posted in a public place. It would be inconsistent to permit an instructor to devise a policy of posting grades in an on-line course that offers less security than its on-campus counterpart. The point here is the policy as published in the syllabus. In an individual case the instructor may very well respond to a student's request by e-mailing the grade to an address chosen by the student.

> - *Best Practice00* recommends publication of a policy for the electronic transmission of student grades, including a provision for password protection.

This rule can probably be implemented best by posting grades on-line, and using grade-book software that publishes students' grade pages on-line and at the same time accommodates grades from other classes in other formats.

6. Password protection

Besides password-protecting student grades individually, many courseware packages password-protect the entire course website from outside inspection. The analogy here is the classroom setting where any particular class session is customarily protected from uninvited outside interruption.

Arguments in favor of maintaining or even strengthening the analogy come from instructors who use copyrighted materials in their on-line course. A copyrighted text of a certain length, for example, maybe reproduced for educational purposes in the "class" without the explicit permission of the publisher. Password protection of the whole course website is the closest one can come at the moment to replicating the concept of a "class" to the possible satisfaction of publishers who themselves are uncertain about copyright provisions for on-line courses.

  Other software solutions leave the course website open to the public in principle and password-protect only particular components such as a discussion page, for example. The argument in favor of this arrangement states that the presumption for an INTERNET course is its public nature. There is nothing "internal" or even secret about any course syllabus, course description or research assignment in the class. Furthermore, it maybe helpful to other students to visit the website and decide whether they want to take the course. Experimentation with various technical solutions is in full swing floating mostly on an air of innocence because actually very few students have had the experience of finding graffiti inserted in one of their essays which they had just posted to the course website. At this point in an ongoing experimentation *Best Practice00* would suggest

> - to keep accessible to any visitor all portions of the course website that provide information about the class or offer assistance for student research and assignments, for example, by providing links to other websites;
> - to password-protect and shield from outside scrutiny all portions of the course website that contain personal information about students (e-mail addresses, who-is-who, for example) or post any student writing (discussion or formal writing assignments);
> - that courses using software with complete password protection (Blackboard etc.) create a cover or jumper page that contains the printable syllabus and other necessary information as well as the protected link to the course website proper.

7. Maintenance

  Apart from adding, deleting or changing components, every course website remains a work in progress and requires maintenance and periodic updating.

> - *Best Practice00*   recommends that maintenance and updating occur at the end of each semester or run period;
> - *Best Practice00* recommends that the following operations be included:
>> - Cut off links to the course website from other parts of the College's web-page in the case that the course will not be taught in the following semester or run period;
>> - In case the course is taught in the upcoming semester, get ready now to welcome new students. Change the calendar and all relevant dates elsewhere in the course website.
>> - Check external links and internal functionality of the whole site. Remove (and archive, if desired) the student discussion, posted assignments, biographical data and for the past semester.

8. MCCT Compliance

  When the on-line course is offered on the schedule of the Maryland Community College Teleconsortium (MCCT), *Best Practice00* recommends that the instructor make the following adjustments to the syllabus and other relevant pages of the course website.

- Change the welcome message to include students other than FCC students.
- Adjust the information regarding the purchase of the textbook.
- Make arrangements at the home campus of non-FCC students for tests that require a picture ID.
- Adjust the wording of the test-taking information on your website and in other communications to include non-FCC students.
- Be pro-active in making arrangements with the registrar's office to receive possible late registrations from other colleges immediately.

V. Access for Students with Disabilities

1. Defining the Problem

     An instructor designing an on-line course for delivery over the WWW is under various pressures to make full use of the technological tools available.   This would include the use of colorful pages, graphics instead of excessive text, tables to organize information concisely, and multi-media devices such as audio and active graphics (scrolling, blinking, etc.). These tools make the site more attractive to students, which hopefully encourages interest, enrollment and retention.   It also should be recognized that the public nature of WWW delivered courses make them widely available for scrutiny by the instructors' peers and others who wish to evaluate their efforts.   This element of self-consciousness may add to the pressure to present a technologically sophisticated on-line course.

     However, we should consider that many of those attempting to access our sites may be operating in contexts very different than our own.   Some visitors:

          cannot see graphics or text easily or at all due to visual impairments.
          cannot hear audio because of hearing impairments.
          may not be able to use a keyboard or mouse easily.
          may use a text-only screen, a small screen, or a slow INTERNET connection.
          may use a gray scale monitor or be color-blind.
          may use adaptive technology (e.g. voice output or brailled programs).

Thus, it is important for the course developer to consider these situations during page design if we are to make our courses accessible to a diverse audience.   It has been noted that although there are several situations to consider, each accessible design choice generally benefits several disability groups at once.

2.   The Need for Disability Access Design

     Section 504 of the Rehabilitation Act of 1973 and The Americans with Disabilities Act of 1990 (ADA) both require the College to make our programs and services accessible to those with disabilities. Much progress has been made over the years with making our physical plant and traditional programs accessible to a diverse population.   But according to the United States Justice Department, the ADA also applies to the cyberspace "world."   "In an opinion letter dated   9/9/96, The U.S. Department of Justice stated that:

     Covered entities under the ADA are required to provide *effective communication*, regardless of whether they generally communicate through print media, audio media, or computerized media such as the Internet.   Covered entities that use the Internet for communications regarding their programs, goods, or services must be prepared to offer those communications through accessible means as well."

As a covered entity, the College must provide as equally effective communication to a member of the public who has a disability as it does to those without a disability. The issue of the nature of what constitutes 'effective communication' has been recently addressed by the Office of Civil Rights (OCR). In a 1996 settlement letter from the Office of Civil Rights of the United States Department of Education: "The issue is not whether the [person] with the disability is merely provided access, but the issue is rather the extent to which the communication is actually as effective as that provided to others." More recently (1997), "OCR has discussed in their settlement letters the need for educational institutions to reconsider the practice of providing personal reader attendants as the exclusive or primary way of making web sites accessible to persons with disabilities. OCR has repeatedly expressed its concern about the 'graphic window" commonly used on web pages that produce stumbling blocks when not encoded with ASCII-description. In a nutshell, OCR is not concerned about whether or not the student with a disability is merely provided access; OCR is concerned about whether or not the quality of that communication is as effective as that provided to other students without disabilities at the web site."

As important as it is, legal compliance shouldn't be the only reason to make our web sites fully accessible. Web experts tend to agree that universal design is good for everyone. As one states,..."When WWW sites are accessible to people with disabilities, they are highly usable and accessible to everyone else as well. As the Web matures and grows in popularity, web-masters can be less and less certain that the visitor is using the latest version of Navigator or Explorer, or using a slower modem so has the graphics turned off. In other words, accessible Web design also assures "backward compatibility" with older INTERNET browser software or hardware. But it's not just older technology that benefits from good design. Many newer ways to access the INTERNET benefit greatly from universal design. People may be online with their PalmPilot, WebTV, or from a kiosk, or browsing using their telephone. The closer companies and other organizations design their sites to HTML standards, the more accessible they are to people with disabilities and everyone else."

3. Accessibility Guidelines

The general theme for providing access to persons with disabilities seems to have two basic themes: to ensure graceful transformation, and making content understandable and navigable.

a. Graceful Transformation

Pages that transform gracefully remain accessible despite any physical, sensory, cognitive disabilities, or technological barriers. Some general keys to designing pages that transform gracefully include:

- separate structure from presentation.
- create documents that work even if the user cannot see and/or hear. Remember that a user may be using a screen reader for synthesized speech or conversion to braille.
- create documents that do not rely on one type of hardware. Pages should be useable by people without mice, with small screens, low resolution screens, black & white screens, with only voice or text output, etc..

b. Understandable and Navigable Content

This includes not only making the language on the pages clear and simple, but also providing understandable mechanisms for navigation within and between pages. Navigation tools should be plainly stated as to their purpose, have appropriate ALT text, and be located on

pages in a consistent manner. Providing navigation tools and orientation information in pages will maximize accessibility and usability.   Not all users can make use of visual clues such as image maps, proportional scroll bars, side-by-side frames, or graphics that guide sighted users of graphical desktop browsers.   Users also lose contextual information when they can only view a portion of a page, either because they are accessing the page one word at a time (speech synthesis or braille display), or one section at a time (small display, or a magnified display). Without orientation information, users may not be able to understand very large tables, lists, menus, etc.

> - *Best Practice00* recommends the following activities:
>> - Any hyperlink used as a component of the course should be checked out to be sure of access standards.
>> - Accessibility compliance should be included as part of the course approval process (see section V. Course Approval) for both internal and MCCT courses.

The College has already established several on-line courses with, in all probability, minimal attention given to the universal accessibility issue. This issue has potential legal ramifications. *Best Practice00*   recommends the following for currently existing courses:

- That each current on-line course be tested by the instructor with a typical text-based browser   for accessibility design issues.   This will give the instructor an appreciation of what a visitor using an alternate browsing tool (e.g. screen reader) would encounter, and what changes are needed.
- That each course be tested by "Bobby" ((http://www.cast.org/bobby)) a free public service accessibility validation and diagnostic site.   When a course is approved by "Bobby," a logo attesting to that fact can be displayed on the course home page to advertise compliance.

VII. Sources and Resources

(Note: The following publications have enriched and contributed to the ideas and observations expressed in this document. Given the purpose of the document, however, attribution to particular sources has been omitted)

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VIII. Course/Website/Instructor Evaluation (attached)
       1. Demographics
       2. Technical Information
       3. Visit Information
       4. Site Evaluation
       5.Course Evaluation
       6. Instructor Evaluation