Supplementary Information for Students

CSCI–320 Principles of Data Management

Section 01

Fall Semester 2017–2018 (2171)

Instructor – Henry A Etlinger

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Contents

1 Preface

I want to see my students succeed. I want to help my students succeed. While I care about my students, I also hold them accountable. Their actions, in and outside of class, their efforts with respect to class assignments, and any exchanges they have with me or other students, should be carried out with respect and reflect positively on the individual. This document is lengthy, but it represents a significant effort on my part to provide students with valuable information. While it would be "easy" for you to dismiss this document as simply another example of a faculty member attempting to exercise their authority over students, try to resist that temptation. Sure, there are rules and requirements and I *do* want you to be aware of them. Do not, however, lose sight of your goal, which is to *learn*. While many education specialists promote *learning communities* and formally define this term, every class can be viewed as a learning community, provided that the participants trust one another.

If you have questions or need clarification, then ask me for answers. If you want advice, then ask me for advice. If you find yourself struggling, then come to see me. If it's not convenient to come in and see me, then send me email. And, **if I request that you come in to see me, please consider this to be important** (and it doesn't have to mean that you're "in trouble") and make every effort to see me as soon as possible. Perhaps this document (more precisely, the *length* of this document) is a harbinger of what's to come. There will be numerous items, some of them lengthy, to read as part of this course. While you have much to do in your life, do try to read this document carefully, otherwise you're likely to miss important details or concepts.

RIT moved to a semester–based calendar as of fall semester (2131) after having been on a quarter-based calendar for many years. Starting with fall semester (2171), RIT will operate under a revised semester–based calendar, one that eliminates intersession, slightly shortens the length of semesters, and slightly increases the length of summer session. As with any new calendar, you can expect a few "bumps in the road" as both instructors and students adjust to the parameters of the new calendar. RIT implemented a new grading system, referred to as either the **Refined Grading System** (or RGS for short) or the **Plus/Minus Grading System** as of fall semester (2141). It is expected that this year governance groups will work toward developing a best practices guide for faculty to encourage more consistent grading across campus. I have more to say about my use of this system in the section titled *Grades*, but for now, let's just have a successful term.

2 Instructor Information

I am Hank Etlinger, a Computer Science faculty member. My office is located in Golisano Hall (formerly Building 70), Room 3019 (located within the Computer Science Department Student

Services area, third floor, Room 3005). My phone number is 475–2097 and email may be sent to hae@cs.rit.edu. If I don't answer my phone during the day, one of the staff will typically answer, or you will be connected to my voice mail. I have both teaching and administrative responsibilities within my department, serving as the Undergraduate Program Coordinator.

My fixed schedule this semester is:

- Office Hours: T 10:00 AM – 11:00 AM; R 10:30 – 11:30 AM; M 2:00 PM – 3:00 PM; W 2:30 – 3:30 PM
- Principles of Data Management (section 1) – TR 3:30 PM – 4:50 PM (GOL-2590)

My scheduled office hours should be considered tentative for now as times for all committee meetings have not yet been established. Occasionally, an office hour has to either be *rescheduled or cancelled* due to other events that come up. I try to maintain a list of such events as well as times when I know ahead of time that I am not available on the copy of my schedule posted on my home page. While my schedule may appear to have a great deal of free time, this is misleading. Much of my day may be spent fulfilling administrative responsibilities, attending meetings, doing writing and research, or holding individual appointments. Still, I would like to see students as much as I can. During office hours, just stop in to the Computer Science Department Student Services area and let one of the staff or student workers know you're here to see me and they'll let me know you're there. At other times, you may check with the staff to see if I am available or, since the staff have access to my calendar, you may schedule an appointment with them (either in person or by calling 475–2995) to see me. Many routine matters associated with this course may be handled through email (see below).

Although my grading system provides students with some flexibility with regards to class attendance, I believe it is in a student's best interest to attend as many classes as possible.

3 Course Handouts

Most materials distributed to students will be done electronically. I do maintain a marked bin located just outside the entrance to the Computer Science Department Student Services area (make sure you select the correct bin). In that bin, I will place additional copies of any materials handed out in class in paper form only. My expectation is that every student will get (or pick up) and keep a copy of every item handed out in class as well as keep up with items distributed electronically. I suspect that I will not hand out too much material in paper form, but you never know. From my home page you can reach a page specifically set up for my section of the course. Virtually all course materials are available electronically from my section specific page (located at http://www.cs.rit.edu/~hae/). I expect and hope that students will frequently check this page and take note of new or revised posted items. I also want to point out that instructors for other sections of this course, past and present, may post many more materials than me (for example, lecture notes, sample documents, etc.). You might want to browse http://www.cs.rit.edu/~rkr/ or http://www.cs.rit.edu/~chr/, but realize that ultimately I set the expectations for my section of the course. This semester I **do not plan** on making use of RIT's **myCourses** system for course

content as materials will be available through my web pages. This semester I **do plan** on posting raw grades for students to view (without making use of any calculation functionality present in the tool) in the GradeBook tool found in **myCourses**.

4 Sources of Course Information and Email

4.1 Information

Information mentioned in class becomes part of the course and the same can be said for information conveyed through email. I use email frequently, for simple reminders or acknowledgements to (sometimes) much longer communications that relate to various aspects of the course. Please **check your email frequently** as I can not stress enough how important it is to keep up with information pertinent to this course. There are no department–wide web pages for this course, so any course information that is posted electronically will be posted on my section–specific page(s). I have used the current edition of our textbook before, but that does not mean that I like all aspects of it. Posted separately is a tentative schedule, but this schedule is likely to change throughout the semester, so be alert to revisions as they are posted.

We start with an introduction to the field, followed by a review of the relational model (the predominant model currently used as the basis for database management systems) and some of the languages (primarily, relational algebra and, to a lesser extent, relational calculus) that provide the background for SQL, which is the dominant language used in most database management systems). While our formal study of SQL in class will be relatively brief, students will begin the process of gaining additional experience outside of class with the Postgres version of SQL (in preparation for the database project). Next we move on to what I consider the single most important topic in the course; namely, database design. Within this unit, we study modeling (via what are called entity-relationship (E-R) diagrams), how to convert E-R diagrams to an initial set of relations, and then focus on normalization and other techniques that help us improve our initial design.

When we have covered database design at least to some extent, it becomes feasible for students to start work on the database project. While that effort takes place, we begin to cover a few additional topics in class, but not nearly to the same degree of depth. These "lighter" topics will likely include: transactions and a brief introduction to storage, file structures, and indexing (this brief introduction may largely be a topic covered by students on their own). I also have groups (I call them "coalitions") of students learn and present additional material to the class via what I term the "learning module assignment". Through this activity, students have an opportunity to cover an additional, rich set of topics. Some topics will involve more in–depth coverage of traditional database topics while others may represent current application areas or newer data management concerns, but all of these topics are highly relevant to today's data management "world".

Boundaries for material covered on each exam depend in part on how long it takes us to go through selected material. I will announce the scope of each exam at least one week in advance. During the latter part of the term, some class time will likely be allocated for coalitions to work on either the database project or the learning module assignment.

4.2 Email

Email is perhaps the most widely used computer application. That doesn't necessarily mean that everyone uses it properly or effectively. When I originate email, for example, to a class, such email is **always** sent to your Computer Science account, so read that account frequently. At times, such as during the beginning of a semester, I may send email through SIS to the entire class (since I may not yet have CS email accounts for all students), but this is not my usual choice.

Let's be absolutely clear on several points. Computer Science majors and other students who take Computer Science classes receive Computer Science accounts. Associated with Computer Science accounts are Computer Science email addresses. It's possible that your RIT email account looks similar to your Computer Science email account, but you should be able to tell the difference. As I mentioned earlier, my Computer Science email address is hae@cs.rit.edu (note the ending part is *cs.rit.edu*, not *rit.edu*). By the way, if you send me an email message, I typically reply to whatever email account you used. (As an aside, there are individuals at RIT who promote the idea that you should avoid using personal email accounts when conducting professional exchanges. I do not insist on that, but I do see the "logic" in that perspective.) There are times when you may experience problems with your Computer Science email account, but it is **vital** that you correct those problems as soon as possible. If you cannot correct those problems on your own, then go to the Computer Science "system administrator's" office and ask for help. Do **not** ignore my emails and **confirm receipt** of emails I send you, **if I request such confirmation**.

If you are not often in the Computer Science labs, find a way convenient for you to access one of our machines remotely or use *Webmail* that's available under the Student Resources tab on the Department of Computer Science web pages or **forward your mail** to a different account. If you do set up forwarding, it is incumbent on you to do so correctly and to quickly resolve any problems that may result from your efforts at forwarding your email. Some discussion about these issues may be found at both RIT and Department of Computer Science web pages. In particular, under the Student Resources tab on the Department of Computer Science web pages is link titled "Computing FAQ" which has a section devoted to email. Realize that email is a constantly evolving technology and organizations (and that certainly includes RIT) are constantly adapting this technology to their own needs. For example, I have been informed that new as of this semester, new CS accounts will have their email forwarded to their RIT accounts by default, a practice that was not followed in the past. It is up to you to keep up with all of this and make things work!

Don't assume too much when you email someone else (for example, me). Your "best bet" is to send plain ASCII text files and get "right to the point". Increase your chances that information won't be "lost" by making your lines reasonably short and making liberal use of "real" carriage returns. Finally, recognize that I receive email from all sorts of people, for all sorts of reasons, using all sorts of email accounts. **Make sure you include a brief, but accurate subject phrase and that the body of your message contains your name, as well as useful information, such as course and section numbers.** Finally, a useful way to think about **any email** (or **document** or **presentation**, for that matter) is to make it **stand on its own**.

5 Course Information

We now teach under semesters. This course, CSCI–320 (Principles of Data Management) is now a required Computer Science course. This has been a "long time coming" – previously, all database courses that we offered were considered Computer Science Electives. We certainly believe that anyone who graduates today with a degree in Computer Science should have at least a broad introduction to the data management area and that's what we hope this course provides.

Also new under semesters is the fact that all Computer Science courses, both undergraduate and graduate, are offered under the CSCI prefix. We encourage undergraduate students to take graduate level courses for which they are qualified. Once you complete this course, you may decide to take additional courses in the data management area. We offer CSCI–420 (Principles of Data Mining) as well as the occasional seminar course (listed under CSCI–529) at the undergraduate level, but at the graduate level, we have more offerings. There you'll find CSCI–620 (Introduction to Big Data), CSCI–621 (Database System Implementation), CSCI–622 (Data Security and Privacy), CSCI–720 (Big Data Analytics), CSCI–721 (Data Cleaning and Preparation), as well as the occasional topics course (listed under CSCI–729) on other emerging data management areas. Students should note that if they complete both CSCI–320 **and** CSCI–420, they will **not** be permitted to take CSCI–620.

5.1 Course Description

The catalog description for CSCI–320 (Principles of Data Management) is:

> This course provides a broad introduction to the theory and practice of modern data management, with an emphasis on the relational database model. Topics in relational database systems include data modeling; the relational model; relational algebra; Structured Query Language (SQL); and data quality, transactions, integrity and security. Students will also learn approaches to building relational database application programs. Additional topics include object-oriented and object-relational databases; semi-structured databases (such as XML); and information retrieval. A database project is required.
>
> Enrollment Requirement: (MATH–190 or MATH–200 or 1016-366) and (CSCI–142 or 4003-242 or 4003-334) or equivalent courses. [Note, the first requirement refers to a rigorous course in discrete mathematics and the second requirement refers to a second programming course in some sequence.]
>
> **Credit: 3**

5.2 Course Goals

It's difficult to imagine a computer-intensive program of study today that does not have a database component, but historically, database courses did not always exist. In *ACM '68* (ACM stands for the Association for Computing Machinery, one of two major, computing professional organizations), the first major computer science curriculum proposal, there was no such course. Generalized data

management systems were briefly introduced in course II (*Data Structures*), but there were no courses completely devoted to data base theory or management. In two separate ACM curriculum documents regarding programs in information systems that appeared in 1972 and 1973, the study of data management systems was again considered part of more comprehensive courses. In *ACM '78*, however, an advanced course (CS 11, *Database Management Systems Design*) appeared. This was a senior level course that introduced students to the three major data models used for data management systems as well as covering other related issues such as underlying file organizations, file security, and data integrity. Students were expected to use some data management system as part of the course. In *Computing Curricula 1991*, database and information retrieval is listed as one of the key subject areas that comprise the discipline. Such material was considered fundamental and worthy of repeated study as a student progressed through their program. Finally we come to the latest major approved computer science curriculum proposal, known as *Computing Curricula 2001*, a report endorsed by both ACM and the IEEE Computer Society, the two major computing professional organizations (IEEE stands for the Institute for Electrical and Electronic Engineers). In this proposal, information to be learned and taught falls under one of fourteen categories. One of these fourteen categories is termed Information Management (IM) and it's this category that includes both core and elective material on databases. If you're interested in these sorts of things, there was an interim revision to the 2001 report published in 2008 and the latest such publication is titled *Computer Science Curricula 2013*, published December 20, 2013. In this report, the field of Computer Science is represented by a "Body of Knowledge" which is now organized into a set of 18 "Knowledge Areas" (known as KAs). Information Management (or IM) is still one of the KAs and the recommended coverage of this KA is comparable to what had been recommended in both the 2008 and 2001 reports.

The data management field is both broad and deep in many areas, so it's inconceivable that we can cover all topics in one one-semester course. Rather, our goal here is to introduce students to some of this breadth and offer them a chance to selectively look more deeply at some topics. To that end, I've structured the course to offer students the following opportunities: extend their understanding and use of computer systems by designing and developing a sample database application; study and apply a well-known modeling technique (known as E–R modeling) for capturing user requirements; study and apply the relational model, as well as investigate properties or characteristics of this model (for example, normal forms and functional dependencies); gain some appreciation for the historical development of database systems and ideas; gain some fluency with both theoretical database languages (such as relational algebra and relational calculus) and practical database languages (SQL); investigate an assortment of technical dimensions to the database field (these investigations will involve some research as well as several practical dimensions).

Learning (and teaching) takes place at multiple levels. One convenient way to describe this is to use Bloom's taxonomy of educational objectives. This taxonomy seeks to categorize knowledge and the expectations one has when a person performs at a certain level. In Bloom's original taxonomy, there were six hierarchical categories, ranked on a single dimension. The categories were: (simplest) *knowledge, comprehension, application, analysis, synthesis, evaluation* (most difficult or complex). Recently, a revised and expanded version of Bloom's taxonomy has appeared. This revised taxonomy plots knowledge to be learned (the *knowledge dimension*) versus the process used to learn (the *cognitive process dimension*) in a two-dimensional matrix or grid. A version of this grid is given below.

Knowledge Dimension	**Cognitive Process Dimension**					
	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual Knowledge						
Conceptual Knowledge						
Procedural Knowledge						
Meta–cognitive Knowledge						

In the revised taxonomy, all learning objectives for a course would fit into one of the cells in the grid, intersecting some type of knowledge to be acquired and some type of process to be used to acquire this knowledge. What you need to learn is divided into four knowledge categories (notice that what you learn is typically described by a noun; for example, a fact or a concept). How you go about learning falls under one of the six cognitive process categories (notice that how you learn is typically described by a verb; for example, memorize, apply, create or construct).

Most activities and courses require people to operate at several of these levels, although most courses tend to cluster around some region within the grid. The database course certainly requires students to operate **across the first four categories** with some work done in the **last two categories**. You'll be asked at times to recall facts, interpret ideas, apply the facts that you know to solve problems, and analyze situations and make judgements about them. In some activities, you will need to evaluate the work done by others and in some activities you will create a novel solution to a proposed problem. Questions from any one of these levels may show up on exams.

How will having this perspective help you to succeed in this course? One direct benefit of this relates to exams. With each level in Bloom's taxonomy we tend to associate certain key words. *Remember* is often associated with such words as *define, list, state, where, what*; *understand* is often associated with words such as *describe, interpret, explain, summarize*; *apply* is often associated with words such as *classify, choose, solve, give an example*; *analyze* is often associated with words such as *compare, organize, differentiate*; *evaluate* is often associated with words such as *critique, defend a position*; finally *create* is often associated with words such as *design, construct, plan, produce.*

Another direct benefit to knowing something about Bloom's taxonomy relates to one of the assignments in this course: namely, the learning module assignment. Starting now to analyze learning from multiple perspectives will help you later on in the course. There are numerous sources online that describe or discuss Bloom's taxonomy. For starters, you might look at:

https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/

Finally, any course also includes goals which are more difficult to enumerate. You will have opportunities in this course to improve your writing skills, your ability to carry out some tasks as part of a group, and possibly to improve your presentation skills. Some course activities will carry deadlines and specific instructions and you will be expected to meet all of the stated requirements. You will be expected to learn some material completely on your own. You will need to organize your time so that you can work productively on more than one activity at a time. When all is said and done, specific details in our profession rarely last, so while you will need to know certain things for the duration of the course, the "big ideas" may matter even more. As B.F. Skinner once said:

> Education is what survives when what has been learned has been forgotten.

5.2.1 Intended Learning Outcomes and Related Ideas

This course is designed to help students master the following **course goals**:

1. Students will be able to describe the basic concepts underlying the management of data, especially in the context of database systems.
2. Students will be able to analyze a data domain, develop a data model, and map it to appropriate relational tables.
3. Students will be able to explain the basic concepts of relational algebra, and apply these concepts to develop queries.
4. Students will be able to use basic features of SQL to design and develop contemporary software applications that use a relational DBMS for data storage and retrieval, applying concepts such as data quality, integrity, transactions, and security.
5. Students will be able to explain basic concepts underlying contemporary data management topics.

So what does this mean? Here are two things you can think about throughout the term that may help you understand. First, think about what's "bigger" than this course. How about considering the entire B.S. degree in Computer Science? As part of being an accredited Computer Science program, our department has defined a set of student outcomes that we expect all graduates to attain. Different student outcomes are supported in multiple ways and each course is expected to contribute to at least some of the student outcomes we expect to see in our graduates. In the case of this course, the primary student outcomes supported are:

1. Apply the theory and principles of computer science.
2. Demonstrate fluency in high-level programming languages, environments, and tools for computing.
3. Demonstrate advanced knowledge of a selected area within the computer science discipline.

Now, think about what's "smaller" than this course. How about considering the individual topics that we will cover throughout the term? For each one of these topics, I'll provide you with a guide to what I think is important for you to study, learn, and master with respect to the topic. As you'll begin to find out, the task of clearly defining expectations is difficult and often subjective, but at least I'll make an effort to try to help you understand what's important about each topic. It really will be up to each student to make the connections between the individual topics we cover and the intended learning outcomes for the course (and beyond that, with the student outcomes associated with the degree)!

5.3 Documents

5.3.1 Reading Material

The required textbook is:

Database System Concepts by Silberschatz, Korth, and Sudarshan, sixth edition, McGraw-Hill, ©2011

IMPORTANT NOTE: I have placed a copy of our textbook on reserve, available at the Circulation Desk in Wallace Library.

Lectures will generally follow this textbook using PowerPoint slides supplied by the textbook authors (copies of these slides will be posted locally and made available to students). As noted in the textbook's preface, the site http://www.db-book.com contains additional student resources. Also, please note that previous editions, while similar to the current edition, will not serve your needs as well. Finally, I am aware of a website for a company named VitalSource (https://www.vitalsource.com) that offers downloadable versions of this textbook for 60 or 90 or 130 or 180 days for students to rent at significantly reduced prices (and I suspect that are other such sites as well). Some students may find this an effective alternative to purchasing the textbook.

There are a number of other reasonable general database textbooks. Below is a list of some books that I consider useful references:

Database Systems: A Practical Approach to Design, Implementation, and Management by Connolly and Begg, sixth edition, Pearson, ©2015.

An Introduction to Database Systems by CJ Date, eighth edition, Pearson Education/Addison Wesley, ©2004.

Fundamentals of Database Systems by Elmasri and Navathe, seventh edition, Pearson, ©2016.

Database Systems: The Complete Book by Garcia-Molina, Ullman, and Widom, second edition, Prentice Hall, ©2009.

Modern Database Management by Hoffer, Ramesh, and Topi, eleventh edition, Pearson, ©2013.

Database Systems: An Application-Oriented Approach by Kifer, Bernstein, and Lewis, second edition, Pearson Education/Addison Wesley, ©2006.

Database Processing: Fundamentals, Design, and Implementation by Kroenke and Auer, edition 12, Pearson, ©2012.

Databases Illuminated by Ricardo and Urban, third edition, Jones and Bartlett Learning, ©2017.

A First Course in Database Systems by Ullman and Widom, third edition, Pearson Education/Prentice Hall, ©2008.

Data Modeling and Database Design by Umanath and Scamell, second edition, Cengage Learning, ©2015.

If your textbook does not adequately explain or illustrate some concepts, consider checking one of

these other sources or consider checking online.

I will provide more specific SQL references later in the semester. Wallace Memorial Library subscribes to several services that provide somewhat limited access to titles that may be relevant to this course. For example, one of their databases is titled **EBSCO** and searching this database for SQL or other similar topics will bring up links leading to the full text for selected titles.

Wallace Library has also recently informed us that they have added a significant amount of content via a database known as **Books24x7**. This site claims to offer a significant number of electronic titles as well as short (on the order of 3 to 7 minutes) instructional videos, all of which are supposedly captioned. You might like to experiment by entering the database and selecting the topic titled *IT and Technical Topics* from the drop–down browsing menu on the right. From the list of items returned in this case, select *Databases* and then choose one of the items returned (for example, *Database Management* or *Data Modeling* or *SQL* or *PostgreSQL*. Apparently, sometime this fall, Books24x7 will migrate to a new platform (i.e., interface) and also be renamed as **Skillsoft Books**. It's also worth stating that given the size and scope of repositories such as **EBSCO** or **Books24x7**, each student has to decide whether items retrieved are useful in this course.

There will be a few occasions during the semester in which you are asked to draw E-R diagrams using a fairly traditional notation that will be covered in class. While some members of the database community now favor using tools such as Rational Rose to create UML diagrams to represent E-R modeling constructs, I still prefer a more traditional notation. I believe there are any number of tools that you may already be familiar with that will allow you to draw the relatively small number of diagrams that I will ask you to draw this semester. Among the tools that I am aware of that may work are *Microsoft Word* (or its Unix counterpart, Open Office) or *Microsoft's Visio* (available in a trial version for a limited time). In the CS Unix labs we maintain a general drawing tool named *xfig*. There are most certainly other tools that students may have access to and be aware of that will be adequate for our purposes (for example, you may want to look at the drawing functionality available through Google Docs or at a product called *gliffy*, available at:

http://www.gliffy.com/

There are products specifically made for drawing diagrams of various types. One product that falls in this category that you may wish to investigate (since the download is free) is *Dia* - a drawing program. This product is available at:

http://www.gnome.org/projects/dia/

As with all such efforts, you have to weigh the costs of learning to use a new product versus the benefits. In this case, you will only need to draw a few E-R diagrams throughout the semester, but you may have other drawing needs that are not directly related to this course.

In addition, documents taken from other sources will be distributed in class as well. *All* of this material is potentially valuable to you. I will make an effort during class to point out especially relevant materials, as well as to suggest other readings, when appropriate.

Finally, I'll mention that there will be times during the term when students are expected to produce documents in Portable Document Format (pdf). There are numerous tools and programs available for doing this, but you should make sure now that you are familiar with at least one method for

accomplishing this.

5.3.2 Your Writing

This is not an English course, yet good writing requires attention to grammatical details. By the same token, your ability to read carefully and accurately contributes to your success in this course. There are numerous books available that help you with grammar or with increasing your vocabulary (so–called "word–a–day" books). Consider obtaining one of these books if you think it would benefit you. Whether you are answering questions on an exam, writing a paper, or developing a presentation, think in the following terms (this material owes its origins to material originally found within RIT's College of Liberal Arts, date unknown):

communicability and organization – are your ideas cleared stated and logically developed? is your material cohesively arranged? is your expression fluent?

appropriate content – is your material relevant to the topic? is the central idea prominent and thoroughly developed?

effective diction and style – does the writing exhibit effective word choice and usage, appropriate tone, and good range?

effective language usage – does the writing exhibit good sentence construction?

effective mechanics – does the writing exhibit only occasional errors in spelling, punctuation, and paragraphing?

5.4 Grades

A student's grade will be based on the following components:

Contribution	Item
20 %	Best of three exams
15 %	Second best of three exams
10 %	Third best of three exams
20 %	Database Project
20 %	Learning Module Assignment
15 %	Subjective assessment (includes class attendance
	and participation, non–graded homeworks)

As mentioned earlier, RIT implemented a new grading system starting with fall semester (2141). This new grading system expanded the set of possible grades instructors could assign from five to ten. **It is important for students to understand** that individual faculty have the option not to assign some of the available grades if they so choose. **I plan to make use of the full set of options** available under the new grading system. Hence, your final course grade in this section will be assigned based on the following table. (**It is also important for students to understand**

that individual faculty have the right to equate course grades with final course average ranges as they deem appropriate.)

Course Grade	Final Course Average
A	92.000 – 100.000 %
A-	89.000 – 91.999 %
B+	86.000 – 88.999 %
B	82.000 – 85.999 %
B-	79.000 – 81.999 %
C+	76.000 – 78.999 %
C	72.000 – 75.999 %
C-	69.000 – 71.999 %
D	60.000 – 68.999 %
F	00.000 – 59.999 %

I certainly believe that students have the right to question or appeal a grade when an item is returned. However, it seems unreasonable to me to allow such appeals to extend "forever". In the context of this course, I will allow students to appeal grades for up to one week after graded material is first returned in class. I think graded materials should be returned in person and so if you miss class when graded materials are returned, that poses a problem. I may choose to continue to bring graded exams to class or I may leave them in the Computer Science Student Services Office and have students pick them up there. Additional instructions regarding this process will be provided via email after the first graded item is returned in class. Note for some items returned close to the end of the semester, you will likely have less than one week in which to file an appeal.

At the start of the term, I asked students to participate in an in–class activity that dealt with "tips" for students to get the most out of this course. This activity was not just a "warm–up" activity to get students talking to one another. Many of the principles embodied in the tips will find their way into the course and directly into how I grade various items associated with the course! For example, I stress due dates for when specific items must be turned in. If items are not turned in on–time, I still expect items to be turned in, but because they are late, there may be a modest deduction in the "grade" associated with the item. I believe I try to keep such deductions in line (i.e., proportionate) to the item in question. For example, on a 100–point assignment, such as the database project, I would not think to take off 75 points because the first email deliverable was late. But, if the email deliverable was worth a maximum of 2 points, I might consider taking off 1 point. As individual items come up during the term, I will revisit this issue (and certainly students can question me on this well before that time).

My policy is **not** to curve individual items nor do I offer "extra credit" work in order to allow students a chance to raise their grade. I believe students should earn grades based on their work in the course as it is defined to apply to all students. I wait until the course is over and I have all grades available to me and at that point, I make a "global" assessment and decide whether any adjustment of the boundaries given above is warranted. You should certainly keep track of your own grades and I believe you should be able to estimate how you are doing in the course as we progress (but, note, a fairly significant portion of the available points are not determined until close

to the end of the semester). If you are not sure how to compute your own grade, I will show you how to do that, although I will expect you to carry out the specific calculations. See section 9.1 for a simple example grade calculation and a bit more discussion.

After the spring semester (2165) began, RIT adopted several changes to policy D5.0 (Grades), with the changes taking place immediately. (Additional changes, related to those adopted, are also being considered. In summary, the changes that have been adopted concern two issues: (1) instructors must clearly communicate to students when graded work must be submitted and when students can expect the return of graded work and (2) instructors must provide timely feedback (i.e., grades) on graded work. As with any new policy, it will take some time to fully understand some of the less obvious implications of the policy, but for now, I will do my best to meet the intent of the policy.

As you will see in the following subsections, I already provide students with information regarding when to expect exams and major assignments. Homeworks are not entirely predictable since they hinge on progress made during specific classes, but, on the other hand, homeworks are not officially graded and so may not fall under the recent policy changes. Traditionally I have not committed to when I will return graded items, although in practice I have done quite well. Given the changes to policy recently adopted, I now need to be more precise. You can expect that exams will be graded and returned within two weeks, but more likely within one week. The database project and the learning module assignment are both major assignments with multiple deliverables each. Grades for both of these assignments are returned after both assignments have been completed in full (that is, I do not incrementally release grades for each separate deliverable; completion is defined by when assignment evaluations have been submitted via the homework mechanism). It may take up to three weeks for grades on the database project to be returned, but grades for the learning module assignment will be returned in less than two weeks. As discussed below, attendance and homework are utilized to develop a subjective component for a student's overall course grade. While the exact formula used to generate this subjective component will not be shared with students, attendance and homework information will be made available through the Gradebook tool in RIT's **myCourses**. Students will have grades for exams and major assignments as these materials are returned to students and this information will also be posted through the Gradebook tool in RIT's **myCourses**.

5.4.1 Exams

Three exams will be given during the semester. The times and dates for these exams will be officially announced at least one week in advance, along with detailed guidance on what to study for the exams. While previously I indicated that I wish to maintain some flexibility throughout the semester, for planning purposes for students, I have scheduled the **first exam** for Tuesday, October 3 and the **second exam** for Thursday, November 9. The choice of dates has been influenced not only by planned coverage of content, but also the Fall Career Fair as well as planned break periods inherent in RIT's new version of its semester–based calendar. The **third exam** (which is not a final exam per se) will be given during the slot assigned to this class during final exam week, which SIS indicates will be on Tuesday, December 19, from 12:30 PM to 2:30 PM in GOL 2590. You'll have the entire scheduled period to complete each exam. While it's possible that you may be given a few additional minutes to complete an exam, you should not count on that. When the class is told

that an exam is over, it is my expectation that you will turn in your exam promptly and without delay. You should work on the assumption that the three exams will be given on the dates listed above, subject to any announced changes.

Bring a working **PEN** with you to class when an exam is scheduled. I require my exams to be completed in pen.

As stated earlier, this is not an English course. Yet, your grade on exams may be affected and my judgment may be negatively influenced by poor handwriting or by poorly worded answers. Pay careful attention to the way a question is worded and respond appropriately. When I grade an exam, I cannot grade your intent, only what you have put down on paper. It is important that you first read exam instructions and that you approach each exam with a strategy. Exams are normally closed books and closed notes.

You should note that once I have all three exam grades, I will weight them so that your better exams counts more toward your final course average.

Students are expected to take exams during the scheduled period. If you are unable to take an exam at the scheduled time, do your best to notify me in advance. If you cannot do that, notify me as soon as possible after the exam is given. Notification is only part of the process, however, of being excused from taking a scheduled exam. A student must also have a **valid** reason for missing a scheduled exam. If the reason is valid and proper notification is given, then suitable arrangements will be made. If not, then a student who misses a scheduled exam will receive a zero for the exam. If your schedule contains a conflict for the third exam that falls under RIT Policy D11.0 (Final Examination Policies), please notify me as soon as possible. Astute students will note that our third exam takes place on the last day of final exam period. RIT expects students to be available to attend class-related activities through the completion of final exam period. As will be explained later in this document as well as in class, the nature of our third exam is such that I expect the exam to be ready by December 19, but unlikely to be ready much before that. Do not make travel plans to leave prior to the end of final exam period and then request that I offer you the chance to take the exam earlier.

5.4.2 Coalitions

Each student will become a member of a *coalition* and this is required. This term is not precisely defined, but you can think of a coalition as something between a group and a team. Members of a coalition **support one another**, both formally and informally, in the course. There are times when I'll ask students to discuss possible homework solutions before we go over them and I'll have students do that in their coalitions. Members of a coalition will work together on the database project and the same coalition members will be responsible for the learning module assignment. Thus, it's important at the outset to try and form coalitions with other students who you trust, who seem as serious about the course as you do, and who perhaps bring complementary skills to various tasks. Depending on the final number of students registered for the course, coalitions will likely consist of either four or five students each. Students can informally start looking to form coalitions right away, but *we will have to wait until after add/drop period is over* before formally going though a process to identify all the coalitions. There will be a homework that's part of the

process and further instructions will be posted before the add/drop period is over.

5.4.3 Database Project

You will have the opportunity to simulate database development activity. Coalitions will gather and set requirements for some application, model the application using E–R diagrams, convert their model into a relational design, implement their database using a standard database product (Postgres), and create an application program to access their database. The project involves multiple deliverables and some form of presentation/demonstration to the entire class. I'm hoping to publish the project description as early as possible during week 6 and tentatively plan for the final deliverables to be due before the RIT course withdrawal date. As stated earlier, since we must maintain some flexibility, please regard these deliverable dates as tentative until the project description is published. Note, **all deliverables** associated with this project must be turned in, even if late and even if incomplete.

5.4.4 Homeworks and Attendance

A number of problem sets will be assigned as homeworks. These sets will consist of a mix of problems taken from the text and elsewhere. I expect to give a reasonable number of homeworks, some of which may be assigned after a class and due by the next class! Homeworks will not be graded, but rather will be *scored* according to a rubric that will be included with every homework. The primary value of homeworks is to give students a chance to work on problems similar to those they may encounter on exams, to provide students with a chance to work together, and to enhance classroom discussions. Going over homeworks often reveals misunderstandings that students may have regarding important course material. A few homeworks offer students a chance to reflect on more general matters related to the course or their own learning and a few homeworks will provide students with a chance to comment on some of the activities they've worked on with their coalition. After I have an opportunity to review all student submissions for a specific homework, I also post a copy of my suggested answers as well as additional observations (or a summary of student responses when appropriate).

Attendance will be monitored by having all students present at each class sign an attendance sheet once. While not a perfect mechanism, we want to keep this aspect of the course simple, so please make an effort to sign the attendance sheet when it comes around, at the start of class. Given that we have classes that are only 80 minutes long, we probably won't be able to take a break during most classes. If for some reason you need to get up and briefly leave class at some point, just do so quietly and then return to class quietly so as to not disturb other students.

I will use homework and attendance when determining a student's "grade" for subjective assessment. I encourage students to attend every class and to submit work for every homework, but I do not expect perfection. Toward the end of the semester I will determine how to apply homework and attendance to grades. Most times I create sliding scales to help me compute this portion of a student's grade. I do not release the specifics of these sliding scales, but I am willing to suggest how I might go about developing them. As an example, let's say *hypothetically* that a class meets for 30 sessions for a total of 45 contact hours (just to keep the "numbers" simple; note, under RIT's new

semester–based calendar, our class actually meets 28 times for a total of 2,240 possible minutes or 44.8 contact hours). Let's say *hypothetically* that I offer students a chance to do 15 homeworks and that each homework is scored from 0 to 2. That's 30 possible points for homework. I might say, for example, that a student might miss a class or two and perhaps a part of a class or two. So, what I might do is say that if a student attended 26 or more sessions of class, they earn the maximum percentage that I assign for attendance; if they attended 24 or 25 sessions, slightly less, and so on. With homeworks, I would do something similar. Allowing for a student to not submit anything for several homeworks and perhaps lose a few points along the way for partial or late submissions, I could say that if their score was 20 or more points, they would earn the maximum percentage that I assign for homework; if they scored 18 or 19 points, slightly less, and so on. Recall that homework and attendance as well as some contribution related to the instructor's subjective opinion combined account for 15 % of a student's grade. Missing more than a few classes or not turning in very many homeworks or not contributing in positive ways, especially on coalition efforts will "hurt" your grade a bit, but the impact is limited and you do have some flexibility here.

5.4.5 Learning Module Assignment

Each coalition will select one of a set of possible topics to study, research, and develop a lesson on. Topics will be chosen from some of the chapters in our textbook that we don't have time to cover in the first part of the course. It's possible that coalitions may work on a topic that is covered by more than one chapter in the textbook. Chapters currently under consideration include: 13, 15, 16, 19, 22, 23, and 25. Topics not covered at all in our textbook are also under consideration. Students will eventually summarize their topic in a report. They will also develop and give a presentation to the class on their topic. As part of their presentation to the class, coalitions will prepare a *study guide* that consist of possible exam questions along with the correct answers. The third exam will include a sampling of exam questions taken from the set of study guides that are produced (in fact, a significant percentage of the questions on the third exam will be chosen from study guides; hence, students will have a high probability of doing quite well on the third exam). Part of the motivation for this assignment is that research shows that students who have to "teach" material typically learn that material more deeply and also improve their critical thinking skills.

I hope to publish the learning module assignment description as early as possible during week 9 of the semester (if not sooner) and have deliverables due right through the end of classes and just before RIT's Reading Day. As stated earlier, since we must maintain some flexibility, please regard these deliverable dates as tentative until the learning module assignment description is published.

Note, **all deliverables** associated with the learning module assignment must be turned in, even if late and even if incomplete.

IMPORTANT NOTE: Work associated with homework, the database project, or the learning module assignment, may always be submitted early. Each individual assignment will indicate how that might be accomplished. For work that I expect turned in on paper, this work may be submitted in class or turned in during normal business hours at the Computer Science Department Student Services Office, to my attention. When work is received at the office for me, it is dated and timestamped. Please realize that items left in the CS dropbox (which is located on the wall just outside the entrance to the Student Services Office) after hours are typically removed and dated

the following morning (or dated Monday, if turned in after hours on Friday, Saturday, or Sunday). Please take this into account if it makes a difference in how your work is evaluated with respect to being marked as *on time* or *late*.

5.5 Being Honest

There is a department policy regarding academic honesty and this policy will be enforced this semester. In addition, all students should be familiar with relevant RIT policies. Please review the following:

- the *Department of Computer Science Policy on Student Academic Integrity* -
  (see http://www.cs.rit.edu); select the About tab and then the appropriate choice),
- the *RIT Code of Conduct for Computer and Network Use*
  (see https://www.rit.edu/academicaffairs/policiesmanual/c082-code-conduct-computer-use),
- the *RIT Honor Code*
  (see https://www.rit.edu/academicaffairs/policiesmanual/p030),
- the *RIT Student Academic Integrity Policy*
  (see https://www.rit.edu/academicaffairs/policiesmanual/d080)

One area of general applicability in this course concerns proper acknowledgement of someone's else ideas and work. This pertains to both written materials and materials that may be used as part of a presentation. We will review these ideas when they are applicable to specific assignments. This is simply one aspect of expected, professional–level behavior. Finally, specific assignments will clearly indicate to what extent students may collaborate with others or utilize work products developed by others.

6 Let the Instructor Know

Sometimes students are reluctant to confide in instructors, yet they may be struggling to the point where their physical, mental, or emotional health is in jeopardy or being affected. I want students to know they can trust me if they share personal information and that I will do my best to be supportive.

I also believe students need to notify instructors *before* rather than *after*. Occasionally, a student must be absent from RIT for some period of time. If you are genuinely ill and cannot come to RIT to take an exam, call me, email me, or send a friend, but do let me know before the exam that you have a problem. We will try to find a reasonable way to accommodate your situation. If your illness prevents you from meeting a project deliverable or some deliverable associated with the learning module assignment, please notify me to see if an extension may be possible. Be prepared to document your absence if called upon to do so. I am more inclined to give your request

consideration if it is made **ahead of time** rather than **after the fact**. You may need to contact other members of the class in some situations and you will be *expected* to do so. Note, some assignments and activities will be accepted late, subject to penalty, while others will not; each assignment or activity will clearly cover this aspect. In addition, homeworks and assignments will clearly indicate how work should be submitted. It is ***not automatically acceptable*** to submit your work using a means different from what was specified, so don't assume that you can simply "do what you want" in such matters.

Should you face a severe problem, it may be more effective for you to advise your home department, explain your situation, and have them contact all of your instructors on your behalf.

There are also some students who simply need some modest support (for example, a bit more time to complete an exam) due to a documented situation. The following excerpt is taken from material under the "Service Process" tab located at the Disability Services Office (DSO) web site at:

http://www.rit.edu/studentaffairs/disabilityservices/

> RIT is committed to fostering an environment where students with disabilities have the same access to academic programs, support services, social events, and physical facilities as every other student.

The Disability Service Office web site provides resources for both students and faculty and also outlines the process used by students to request accommodations. Instructors will be notified electronically when students in their courses have requested specific accommodations, but it's a good idea if students discuss their specific needs directly with their instructor early in a term. If this situation applies to you, please arrange to meet with me during the first or second week of the term. As I pointed out on the student survey students filled in, students have a right to these kinds of accommodations, but they are not extended to students "at the last moment" and are not extended without proper documentation.

If you plan to add or drop this course, note that RIT permits this to take place through Tuesday, September 5, 2017 (although I am not sure what time this option closes, so it would be prudent not to wait until the end of the day). It is especially important for students who add this course, but miss the first class or two, to contact the instructor as soon as possible so they can be brought "up to speed".

If you plan on withdrawing from the course, do so as soon as possible, and realize that the process of withdrawing from a course must be completed by the RIT deadline. While withdrawing earlier is probably better for you, this course is designed in such a way that you must realize that your actions also affect other students. There are two significant activities that take place during the second part of the course and other students are counting on you to participate. If you know that at some point they can't count on you, then withdraw officially and notify them (and me).

This semester the withdrawal deadline is Friday, November 10, 2017. Students can request course withdrawal online through SIS. It is still important that students discuss possible course withdrawal with me first before going ahead and making the request. Students sometimes withdraw from a course because they believe they are doing more poorly than they actually are. While I do not believe that course withdrawal is about grades, nevertheless I want students to have accurate

information before initiating such an action. In addition, it is appropriate in this course that students notify me of their intent to withdraw as this action can affect other students in the course. Once the RIT deadline passes, I will normally not sign a withdrawal form, and certainly not because a student "suddenly" realizes that they are doing poorly. If a student has been accused of cheating and the penalty is course failure, I will not support course withdrawal in order to avoid the failing grade.

Grades of incomplete ("I") are normally not given unless extreme conditions exist that prevent a student from completing the course within the normal schedule. In particular, courses that involve projects, especially group projects, or courses that involve sequential activities or courses that are prerequisite to other courses often prove difficult in this regard. Do not request an incomplete on the basis of your "heavy workload" as that is not likely to lead to an incomplete.

7 If RIT is Closed and Emergency Information

Should RIT be officially closed on a day when an event is scheduled, you should plan on this event occurring at the next regular class day unless otherwise announced. I have already provided tentative exam dates, subject to announced change. Homeworks and other assignments will all carry due dates for various deliverables that are part of the assignment specification. Any changes to due dates once homeworks or assignments are distributed will be announced in class and through email.

7.1 Instructional Continuity

While probably remote, it's possible that some event (for example, a severe outbreak of some strain of flu or a widespread power outage or severe weather) can cause a significant disruption to RIT's normal operating schedule. If such an event were to happen, I might have to modify course requirements and change the overall course grading rubric. If that took place, I would do my very best to make what I considered to be reasonable adjustments and I would communicate those changes to all students in a timely fashion (most likely via email).

7.2 Emergency Information

Most students probably know that RIT does try to issue alerts to the campus community for a variety of reasons. It is important for all of us to stay tuned for such messages. There are some possible situations, such as bomb threats or armed shooters on campus that most of us would prefer not to think about at all. What should we do if an alert is issued while we're in class? We all need to remain calm, but also be prepared to take appropriate action. I recommend that students review the information found at:

http://emergency.rit.edu/

and also look at information associated with some of the links, such as the one that deals with classroom emergency preparedness, found on this page.

8 Instructor and Student Roles

Both instructors and students have roles and responsibilities. Our relationship does not have to be adversarial if we understand this. To borrow a metaphor from the world of object–oriented programming, we are both *objects* and we need to *collaborate* in order to achieve the desired outcomes we expect from a student–course–teacher system!

My role as teacher is to have a grasp of overall course goals and course content, to be able to convey those goals and content as well as answer questions about it, to make assignments, provide support and point out resources. I see this course as an opportunity to expose students to a fundamental field within the larger computing environment. It's hard to imagine that your professional career in computing will not involve database in one form or another and it's important for you to have both a grasp of high level principles as well as some of the details.

Finally, my role is to evaluate your work. It's this last point that sometimes causes tension, but you need to remember that this task is one of my responsibilities.

Students are expected to attend class and take notes (or, if they miss class, to make an effort to find out what material was covered), ask questions, know the course schedule and be aware when items are due or when graded work is returned, read assigned readings, participate actively in class discussions, and advise their instructor when some extraordinary event occurs which may directly affect their performance in the course. Given the rapid pace of RIT's semester system, students must sometimes respond quickly to situations that arise. Students should also realize that each instructor is different and has their own course requirements (in my case, I try to write down and distribute all the critical information, so you are not surprised).

I care about my students and I want them to be successful in this course! I do not think that "having fun" is the main purpose of this course. On the other hand, learning can be *fun* and I think there is a *quiet satisfaction* that comes from learning and mastering new concepts and skills. Work hard this semester so that you may experience some of this satisfaction! In addition, *take pride* in your work and make sure that each item that you produce, from the simplest to the most complex, reflects positively on you.

8.1 Just a Bit More Philosophy

I operate on the principle that you take this course as seriously as I do. You should understand that my impression of you is often based on what I "see". Do you attend class regularly and do you participate when you are in class? Do you arrive on time and do you turn in assignments when expected? If I have clearly stated my expectations, for example, for an assignment, do you make an effort to know what those expectations are and comply with them (or at least ask questions to clarify those expectations you are not sure of)? Do you not only do your own work effectively, but do you also make it easier for others to interact with you? Do you recognize that "time" is sometimes an issue and that some issues need to be resolved quickly?

Speaking of "time", realize that you spend more time out of class than in class. Class is important and what we try to teach in class is important. However, with the limited amount of time we have,

we can really only introduce concepts and go through a limited number of examples. It's much more important for you to focus on **learning** and becoming an **effective learner**. Be alert to suggestions made in class and adopt techniques that "work for you". There's no "formula" which will tell you how long you must work and what activities you must do in order to master some concept. Much of your future success stems from your motivation and having a clear sense of your own goals. If you want help in this area, don't be afraid to ask me for suggestions. By the way, many instructors will often tell students to spend two hours outside of class for every hour spent in class, working on reading and assignments. While this used to be the norm, there's little concrete evidence available that this "rule" applies to today's educational environment and some authors have begun to seriously question the merits of making this suggestion at all.

I have for many years taken an approach *against* equating college with a consumer situation. Do not misinterpret this statement. I believe students are entitled to receive many services from the staff and faculty at any institution. And, I recognize that for most students, college is expensive. I support an idea that was expressed in an essay by Thomas H Benton that appeared in the June 9, 2006 issue of *The Chronical of Higher Education*. Benton stated simply that "students are not customers [and] teachers are not employees." I support the view expressed by Mary S Alexander in an essay titled "Taking All the Fun Out of Education" that appeared in the September 1, 2006 issue of *The Chronical of Higher Education*. Alexander argues in favor of maintaining a bit of ambiguity and not reducing every aspect of a course down to a list of "clear objectives" and "measurable outcomes". I also support a viewpoint offered by Professor Hamad Ghazle in the November 16, 2006 issue of RIT's *News & Events* when he argued that a college education is not just about cost. To quote Professor Ghazle "College education prepares the individual to actively participate in a democratic society. It helps the person to learn to think critically, communicate his or her thoughts clearly in speech and in writing, and make informed decisions." Finally, I recommend the hypothetical memo to students that Maryellen Weimer posted in the August 17, 2016 issue of the *Teaching Professor Blog* – you can access this memo at:

http://www.facultyfocus.com/articles/teaching-professor-blog/a-memo-to-my-students/

9 More Tips For Students

When you've taught for awhile, you come to recognize that students who do well in class (at least in terms of grades) do certain things that increase their chances of success and they avoid doing certain things that decrease their chances of success. For students who do poorly, the opposite seems true. In the spirit of being potentially helpful, I offer some additional suggestions and observations.

1. Perhaps the most important suggestion I can make is that you treat this course along with your other courses as if they were your **full time job!** Plan all of your activities, day in and day out, around all of the tasks you need to accomplish in order to succeed in your courses.

2. The approach that I take in this course demands a fair level of maturity on the part of my students. I tell you things (for example, in person, via a handout such as this one, or via email) and I *expect* you to pay attention to this information, to *understand* it, and to *react* to it (or ask questions about what you don't understand). If you can do this, then I believe

you'll have an advantage. If you can't or *won't* do this, then you make your task in this course that much more difficult.

3. To expand on the two previous points just a bit further, I hope that students come to realize as soon as possible that by design, students will need to do a considerable amount of work **outside of class** in order to truly master the content of this course. While it's fashionable in educational circles to toss out catchphrases (such as flipped classroom or active learning) when describing one's approach to teaching a specific course, I do not do that here. I do, however, see students benefitting from what we do in each class only if they keep up with course activities, reading assignments, homework activities, and other assignments.

4. At the risk of stating "the obvious", let me point out again that the information you receive dealing with *course content* comes from a *variety* of sources. There will be lectures, there will be readings in both textbooks and papers, there will be short–term and long–term assignments, there will be discussions, and there will be additional work that students do on their own. All of these learning "tools" are designed to *complement* one another. If you ignore one or more of these components, you weaken your entire learning structure.

   Related to the issue of sources of information is the fact that many sources are either incompatible, or even contradictory, with one another, or simply different from one another. For example, some information may be found in a textbook. Other information may be handed out in class. My opinions may differ from those expressed by others. Still other information may be on-line, but at more than one web site. Part of this stems from the use of ever-changing technology and part of this stems from the fact that many individuals contribute information as part of the overall process. I believe this situation of having multiple sources of information and of having information delivered to you in multiple ways will not "disappear" (although one can expect that in the future, we will continue to see new ways of distributing information). Thus, **important skills** to acquire include: the **ability to find the right information** when you need it, the **ability to judge** whether a given individual is a **credible source**, and **the ability to determine** whether specific information is correct, reliable, and up–to–date.

5. While it would be terrific if all lectures, readings, and assignments were dynamic, entertaining, and informative, this is not always the case. Nonetheless, please realize that your *primary goal* in this course is to *learn* the material and the primary responsibility for making sure this happens falls on **you**. I also want to point out that we will not place everything in front of you, completely "ready to go". Rather, you'll need to find out what needs to be done and how to do it. You need to plan appropriate amounts of time to become proficient with one or more computing environments and technologies and to do not only the assignments we ask, but other activities that you make up and do for yourself. There's an old "rule of thumb" that a student can expect to study two hours outside of class for each hour spent in class. Depending on your background and how easy or difficult certain concepts or technologies appear to you, you may wind up spending less or even more time than this before you master the material presented in this course or are able to effectively utilize specific technologies.

6. I want to explicitly point out to you that RIT supports students through the Academic Support Center (ASC), a place where you can go to get tips on becoming a better student. The

folks at ASC can assist you or point you toward resources that pertain to such topics as: taking better notes, reading a textbook effectively, preparing for exams, avoiding procrastination, and other similar topics. Also, as part of RIT's University Writing Program, the Writing Commons provides numerous resources and support for students "of all levels and in all disciplines". Think of the staff available through the Writing Commons as consultants who can support you with many different aspects related to writing.

7. Please show *respect*, not only for me, but for your fellow students. I certainly begin each term with the attitude that each student in my class wants to be there and is prepared to make the maximum effort to work hard in the course and contribute in positive ways to the course. There are "small" things that we *all* can do to make life a bit more pleasant around here. For example, if we come into a classroom and find chairs moved around, we can push them back where they belong. If we find that someone has carelessly thrown some paper or food wrappers around, we can throw these things away. If there are people in a classroom taking an exam, we can avoid making noise just outside the classroom. Even a simple "good morning" or "good afternoon" can get class off to a positive start.

   An essay in the Sunday Review of the New York Times a few months ago caught my eye. In some respects, the essay spoke to civility as well as respect. Students will note that I often sign my emails with just my nickname "Hank" and I do that as a way of trying to keep my class informal and relaxed for students. One sentence in this essay, however specifically caught my eye and I quote it here: "In other words, young graduates mistake informality for license to act unprofessionally." If you'd like to read the entire essay, titled "U Can't Talk to Ur Professor Like This", you should be able to access it at:

   https://www.nytimes.com/2017/05/13/opinion/sunday/u-cant-talk-to-ur-professor-like-this.html

8. There's another even more important aspect of behavior that I want to mention. **All of us** must recognize that, as individuals, we share this campus (its classrooms, labs, offices, buildings) with other individuals. We must be sensitive to others and consider the effects that our behavior (what we say, what we do, and even what we choose to display on a computer screen) has on others around us. Whether intentional or unintentional, we cannot tolerate behavior that creates a hostile, intimidating, or offensive environment. I will certainly do my part to maintain an open, inviting, and caring learning environment and I will expect the same from each and every one of my students.

   As some of you may know, RIT recently revised its policy regarding smoking and use of tobacco products. Policy C16.0 (now titled "Tobacco-Restricted University Policy") restricts use of tobacco products on campus. The RIT definition of tobacco products includes traditional combustible items as well as non-combustible items such as chewing tobacco and e-cigarettes. So it seems clear from the policy that use of the products mentioned above is prohibited while in class.

   Finally, RIT makes numerous efforts through various policies, communications, and other documents, to remind faculty, staff, and students that RIT is and strives to be a diverse and welcoming environment in which discrimination, harassment, misconduct or violence based on any number of personal characteristics or beliefs simply can't be tolerated. Further context for these ideas may be found in policy C06.0 ("Policy Prohibiting Discrimination and Harassment").

9.1 Grades Revisited

You should *keep* all graded work that is handed back to you for at least the duration of the semester. If you receive written or email communication related to assignments, make sure you keep those items as well.

I do not curve individual items. At the end of the semester, I go through a two–part process to determine your final grade. First, I compute your final average (in numeric terms). Then, I analyze your final average as well as your individual grades and make a determination of what letter grade is appropriate to assign you. I do take into account how the class did on each item and I do look at all graded items as a set. Under the Refined Grading System (RGS), I now have to make even more subjective judgements. While I can still equate an "A" with excellent or superior work, I also have to think about grades of "A-" and "B+" as representing very good work. A "B" equates to good work, but now grades of "B-" and "C+" represent work that is above average, but not quite as good as work represented by a grade of "B". Grades of "C" and "C-" represent ordinary work, a grade of "D" represents minimally passing work, and grade of "F" represents unacceptable work. I reserve the right to make this judgment as I see fit. The assignment of grades is *not* a perfect science, but more of a *craft*. I take it seriously and I attempt to do it as fairly and as reasonably as I can. I cannot "manufacture" grades for you, however, so you can make my life "simpler" by obtaining an overall course average that leaves no doubt in my mind as to what grade I should assign you.

As a simple example, suppose at the end of the semester, a student had the following:

Item	Maximum Item Score	Your Grade	Your Grade As A Percentage
Exam 1	50	40	80 %
Exam 2	50	30	60 %
Exam 3	50	42	84 %
Database Project	100	90	90 %
Learning Module Assignment	100	85	85 %
Subjective Assessment			12 %

Let's just say that this student had submitted eleven of 15 possible homeworks and had missed five classes and that's why they earned only 12 % toward the subjective assessment category. This student's overall course average is 81.8 % and they earn a "B-". How did I arrive at this overall course average? Recall that the best exam will count 20 %, the second best exam will count 15 %, and the third best exam will count 10 %. Both the database project and the learning module assignment will each count 20 %. So, the formula to use in this case is:

(80 % * 15 %) + (60 % * 10 %) + (84 % * 20 %) + (90 % * 20 %) + (85 % * 20 %) + (12 %)

Two of the exam grades were okay, but one of the exam grades was poor, while grades for the two major assignments were much better and obviously pulled the overall course average into the "B-" range. This student is ever-so close to earning a "B" and it's conceivable that I might choose to assign a "B", but **you can't count on that**. Of course, if exam grades are a bit lower or if the

student turns in far fewer homeworks, they may drift into the "C+" range or even lower. Course grades are subject to numerous factors, some of which you can control and some of which you have little control over.

Final Postscript: There is every expectation that the vast majority of students will earn *good grades* in this course. I think of grades consisting of "A", "A-", "B+", "B", and even "B-" as all pretty good grades. Some of the ranges for grade boundaries are relatively small which implies that small differences in effort or performance could make the difference between one grade and another. Try to be one of those students who seizes every opportunity to do well in every aspect of the course. Come to every class and come ready to participate. Make submissions to every homework. Make sure you're prepared to do well on all of the exams, not just some of them. Differences in grades are often the result of an accumulation of minor miscues. For example, some small portion of the grade for each assignment comes from adhering to assignment specifications. Losing points due to overlooking these specifications, especially repeatedly, is foolish and avoidable. (Perhaps it's "obvious", but in the workplace some people get promotions and some people get raises, and some people don't. While solid, quality work is valued, little things, such as doing things "right the first time" and getting work done on time, also contribute.)

Disclaimer: This material and the accompanying projected schedule only apply to students in my lecture section. This material is intended to be accurate. Any of the information contained here or in the schedule which changes during the semester will be communicated to students via email.