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Mastering[®] Chemistry experience with Magdalena Kasprzak

School: University of Medical Sciences,
Poznan, Poland

Book: McMurry - Fundamentals of General,
Organic and Biological Chemistry

2023



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“It helps me as a teacher to be better” - Magdalena Kasprzak

The course

I work at the **University of Medical Sciences in Poznan**. We are supporting students who sometimes have gaps in their knowledge. So, the first course before the regular semester is a so-called **“pre-course”**. In this pre-course, we use Mastering Chemistry, Mastering Biology and Mastering Physics to **“equalise” the different levels of knowledge** before they start their regular subjects.

The course I coordinate at the very beginning of the students' adventures with Medicine is an online course devoted to Chemistry. It takes about a month to complete. I've been teaching it since 2011, so that's about **12 years** – maybe more. This is how long I've been working with Pearson. Before, we didn't have Pearson, so we had to manage the course differently. Since then, I have worked with many books, like the Timberlake title.

This book I use has a new text and Mastering® Chemistry. It's also the book we recommend to students in their regular semester subject, Medical Chemistry, which I also coordinate.

So, we have, in fact, **three courses** with Chemistry in their title, and the first one is the online pre-course. **In all these courses, we cover the book from A to Z.**



The book

Currently, we are using ***Fundamentals of General, Organic and Biological Chemistry by McMurry***.

My field, in fact, is the field which is on the border between Chemistry, Biology and Biochemistry, so it's not strictly Chemistry, Biology or Biochemistry. The book Pearson has provided is the best book I could dream of because it covers almost all the topics in my programme.

Mastering Chemistry

Mastering Chemistry is the platform I'm using the most on the online course because we do not have the students here in Poland yet – they are **located all around the world** in different time zones. We try to equalise their knowledge by giving them assignments from the Mastering Chemistry platform.

We have around **100 students** annually. It's a constant number every year.



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Why did you choose this textbook you use now, and what do you like about it?

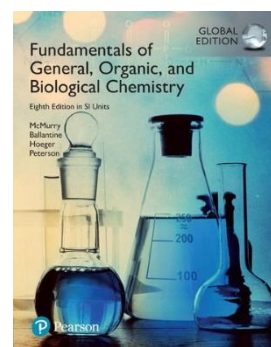
First of all, it is a book which has a good structure. But what I like the most, is the connection between those three subjects: Chemistry, Biology, and Biochemistry with **medical approach or medical application**. There is a lot of information for students.

So, it's not just Chemistry, which is sometimes separate from Medicine: it's, of course, important for the students, but when they enter their first year they want to have as much contact with the healing process as possible.

Sometimes, the applications described in the book are very helpful, making it much more interesting, and **helping students understand why they need to know the specific part of the material**. It brings lots of activities which I use widely. For example, under every chapter, there are many activities for students to **check their knowledge**. This is something I advise students before they take their exams. *"If you want to know whether you understood each chapter well, check the questions under the chapter. See if you understand them, and if not, try to look in the chapter to find where they are. This is how you do the review."* My students who follow my advice say: ***"This is a very good book. I followed your advice and passed the exam."***

Have you used any of the eTextbook features?

Every year I can see there are more opportunities, so this year will be the one I will embrace using the eTextbook a lot more. It's indeed very **interactive**. The highlighting and note-sharing features are very helpful, so I will use them this year.



How have you and Pearson work together since the beginning?

The first person I met from Pearson showed us the Mastering® platform. We cooperated for a few years, and the cooperation was very successful. She was very helpful in introducing us to some new features. In fact, all the local Pearson staff helped me a lot with any issues and concerns I had. Sometimes, I could even say that we are friends.



“What's important about Mastering Chemistry is that you need to actively cooperate and coordinate it.”

Why did you decide to use Mastering Chemistry? What were your aims and objectives?

Due to the fact we have many students from abroad, we need to have them work under one process but still remotely from Poznan . It was crucial for us, and our Dean at the time was not aware of what a powerful tool this is. But now this has changed. I hope we will be able to introduce those Mastering platforms to other subjects, too. Maybe in a few years, we will have it in Polish.

As I coordinate three courses, I use Mastering Chemistry mostly in this online course. Those three courses are for the same students, so **I can monitor their progress** and see how they work. So, this is something important.

Organising the work is also important. The good thing about Mastering Chemistry is if you know how to use it and how to assign those assignments, if you know how to divide them throughout the week, the **students are very satisfied**, and they give the feedback to us that they feel **it's not just a tutorial**.

What's important about Mastering Chemistry is that you need to actively cooperate and coordinate it. If you only “supervise” it, it loses its potential, and it also loses the potential of the students.

How did Mastering Chemistry meet your goals?

First of all, I selected the group of students and, of course, the specific features of the subject.

Not every subject is the same, so sometimes the tools must be different. The way you apply the assignments is different. For example, Biology has a lot more material to read, while Chemistry has less to read and more to practise with. So, first, I wanted to have my subject specified.

Then, I specified the group of my students, and I looked for the tools in Mastering Chemistry that would meet the criteria of those previous points. This is how I created a well-planned course.

Before Class

NEW | 66 Dynamic Study Modules help students study effectively on their own by continuously assessing their activity and performance in real time. Students complete a set of questions with a unique answer format that also asks them to indicate their confidence level. Questions repeat until the student can answer them all correctly and confidently. Topics include key math skills, general chemistry skills such as nuclear chemistry, phases of matter, redox reactions, acids and bases, and organic and biochemistry skills.



How has Mastering Chemistry made your life better as an educator?

In this course, I have mentioned that Mastering Chemistry is, in fact, **part of the didactic process**. It's easier when you have students like I described – when they are all around the world, and you need to work with them, and Mastering is the only tool. It's very helpful at the very beginning of studies like Medicine, but also it was helpful during the pandemic.

It is also something **you can use as a diagnostic tool to observe the progress of your students**, evaluate how they are doing and assess their weaknesses. The Mastering Chemistry platform gives all those capabilities. When you use it wisely, you can get a lot of very helpful information.



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How did you integrate Mastering Chemistry into the curriculum?

Students are given the information that this is one of the first courses, which is online. **They receive a description of what exactly they are expected to do.**

Students must pass the course before they can enter the following higher-level courses. The points from the online course are part of the credit for the second course. This is how the students are in fact **motivated**; they cannot miss the Mastering Chemistry course because they will not have enough points to pass the second one.

We have regulations where those courses are referenced, and students need to pass them before going to the next ones because this is the only way to succeed.

“We are not giving any free runs, so every activity by a student is somehow rewarded. ... I'm looking for some ways to give students bonus points for additional work, so those who are smart at the very beginning see that it's worth being active.”

Do you give credit to your students for working in Mastering Chemistry?

Yes, sure, because we have three courses connected to each other. The online course is not an obligatory course because it's the one that prepares the students for medical studies. So, we don't want to lose the **engagement** of the students.

But we knew from the very beginning that it must be regulated somehow, so students must be **rewarded** for their activity. That's why we connected the credit of the second course with the activities on the first course. We calculated the algorithm where the **students who reach the threshold of 60% receive one point.** If their percentage is higher, they have more points, specifically up to five, and those five points are part of the credit for the next subject.

Students who are not actively participating in the online course on Mastering Chemistry can lose the opportunity to pass the second course. So, it's worth to be active on that course.

In fact, we are not giving any free runs, so every activity by a student is somehow rewarded.

Furthermore, I'm looking for some ways to give students bonus points for additional work, so those who are smart at the very beginning see that it's worth being active. They don't have any gaps in our gradebook.



Item Type: Tutorial | Difficulty: 2 | Time: 7m | [Contact the Publisher](#) Manage this Item: Standard View

± Melting and Boiling Points

At equilibrium, the free energy change, ΔG , of any system is zero:

$$\Delta G = 0 = \Delta H - T\Delta S$$

So, under equilibrium conditions, this equation can be rearranged as

$$T = \frac{\Delta H}{\Delta S}$$

This form of the equation can be used to calculate the temperature at which the equilibrium occurs. Since a phase change represents an equilibrium between two phases, melting and boiling points can be calculated by this method.

Part A

Glacial acetic acid is the concentrated form of acetic acid, the acid in vinegar. The term "glacial" refers to the appearance of the solid form, which resembles glacial ice. What is the melting point of this compound, in degrees Celsius, based on its thermodynamic data shown here?

ΔH_{fus} (kJ/mol)	ΔS_{fus} (J/(K·mol))
24.32	83.93

Express the melting point numerically in degrees Celsius.

°C

[Submit](#) [Hints](#) [My Answers](#) [Give Up](#) [Review Part](#)

Incorrect; Try Again; 3 attempts remaining
Your answer is in kelvins.
You may need to review [Conversion Between Kelvin and Celsius](#).

MasteringChemistry: Gen/Prep Chemistry De...
<https://session.masteringchemistry.com/myct/iter>

Hint 1. How to approach the problem (click to open)

Hint 2. Convert the entropy change to units compatible with the enthalpy change (click to open)

Hint 3. Determine the melting point in kelvins (click to open)

How do you communicate the use of Mastering Chemistry with your students? Do you have to remind them regularly to use it?

It is all very organised. From the very beginning, the assignments are set in a way that they are active for 36 hours. This is because we have students from all around the world, so they need to have the opportunity to open the assignments during the day. I try not to give them any longer than **1.5 hours daily**.

They see only the assignments from the chapters we actually cover. The next assignment we upload is again active for 36 hours, and again new assignments are available at the end of the week.

Then, we will upload the end-of-chapter tests, which are again set to have just one possible answer because students have already had many opportunities to make mistakes and learn from them during the week. They have one opportunity at the end of the week and the end of the chapter, to **summarise what they have learnt**.

Then, we begin the new week and new chapter and continue like this until we finish the Inorganic and General Chemistry part. After this, they go on a different course.

Students know how the workload is organised and if they miss the deadline, they will not earn the points.

If they see they submitted something after the due date, they write to us asking if we can extend the dates, and we do so, but generally, it works.

Students are working with Mastering Chemistry for **36 hours**, and we don't have to rush them to finish their assignments because they know that they have to do it not to miss their points.

In the beginning, the message is very clear about what they need to do and when. The Dean's office sends the regulations to the students during the recruitment. **They know what we expect of them.** Of course, sometimes they don't read those regulations and miss the due dates, but everything is mentioned there, even though they sometimes don't read them.



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What do your students say about the platform?

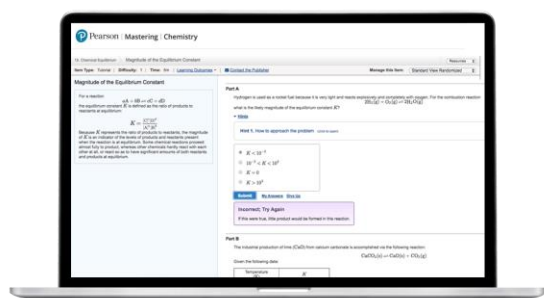
Some students know the platform already, especially those from Canada. Some students even know the book that we use here.

I must say that **students are satisfied because their work is well-organised**. They know what to do, and they see that the rules are clear, so they understand what to work on. It's not too much for them every day.

The book is really interesting, and they also feel that if they need our help, we are always there to answer their questions. They are never left without a comment or a response.

Does Mastering Chemistry have any impact on your students' engagement?

The Mastering Chemistry platform helps them study for the examination. I regularly give them additional assignments. Sometimes, I look for some solutions like the **Dynamic Study Module** or **adaptive follow-ups**, especially before Christmas, so during the winter break they can work with the activities on Mastering Chemistry and prepare for the examination.



Have you seen any changes in student results?

Over those years? Of course, I should not compare it because, previously, it was completely chaotic. **Mastering Chemistry and Pearson introduced regularity in our lives, which I am a big fan of.**

Looking at the results over the years, we have waves. **Now I can give mark A at 75% result.** We had years when it was lower, about 60%. But we had also years when submissions were at the level of 80% and more. If I had to draw a line, I would be close to 75%. I think that's a good result.

How do you think Mastering Chemistry has promoted active learning for your students?

I can **check what time they spent** on the assignments, and I know that this is actually how long the students have actively used the platform.

They read the book very often. They open the assignments. They check if they can answer the questions properly. If they don't know, they either go back to the exercise or write to me. Simultaneously, if something is wrong, I never give them the result. I push them to find the answer themselves. Very often, I give them the clue of which chapter to read.

I like the Dynamic Study Modules and adaptive follow-up activities. I assign them to students, and I think that, sometimes, they don't have enough patience to do them. However, this is also a measurement, a tool which measures how active they are.



If you had to choose the most important benefits for a lecturer to use Mastering Chemistry, what would they be?

It's a great tool, and **it brings lots of suggestions and solutions.**

Firstly, it is organised around the way you teach. It suggests some things you wouldn't think of. It gives you sources which are very powerful, starting from the lectures and the visuals to the test and solutions.

There are even instructions for the chapters for the instructor. **Every chapter has its own instructions.** I'm creating the courses to see what the supply is for the instructors, and this book we are using right now is quite rich in these solutions, so this is very helpful for me. For example, *"Students are struggling with this particular topic, and this is how to deliver those lectures to explain them."* It helps me as a teacher to be better. In addition, there are **PowerPoints, tests and diagnostic tools** which you can rely on.

Last year, I had a situation in our division where a lady working in the Dean's Office was struggling with students who didn't want to pay for the courses, claiming that they weren't active at all. So, the lady called me from the office and asked if it would be possible to check whether that student was active, or not. I looked into one of the diagnostic tools I used and saw that, yes, they had indeed submitted a few assignments.

What would you highlight as the main benefit for students?

They have a great source of knowledge.

They are given a **diverse range of assignments** to verify their knowledge, starting from the tutorials with videos, graphics, and tests. And having a book like this is also a great asset.

"All the instructions and resources for instructors. This is my favourite part."

What is your one personal favourite feature in Mastering Chemistry?

All the **instructions and resources** for instructors. This is my favourite part.

And all the **diagnostic tools** – from a different point of view, as a teacher who needs to diagnose the students and track their progress. I'm only using just a tiny part of it, and it's so huge. I would like to spend more time and observe what we can see about each particular student.

What advice would you give to first-time users?

The most important thing is to spend time to **get familiar with all the tools** that it offers.

Define the group, define the subject first, and then apply those tools to the group and to the subject accordingly.

Would you recommend it to your colleagues?

I do recommend it, yes.

To learn more about Mastering Chemistry, please visit

<https://mlm.pearson.com/northamerica/masteringchemistry>