

KJM 3110 Electrochemistry

Truls Norby

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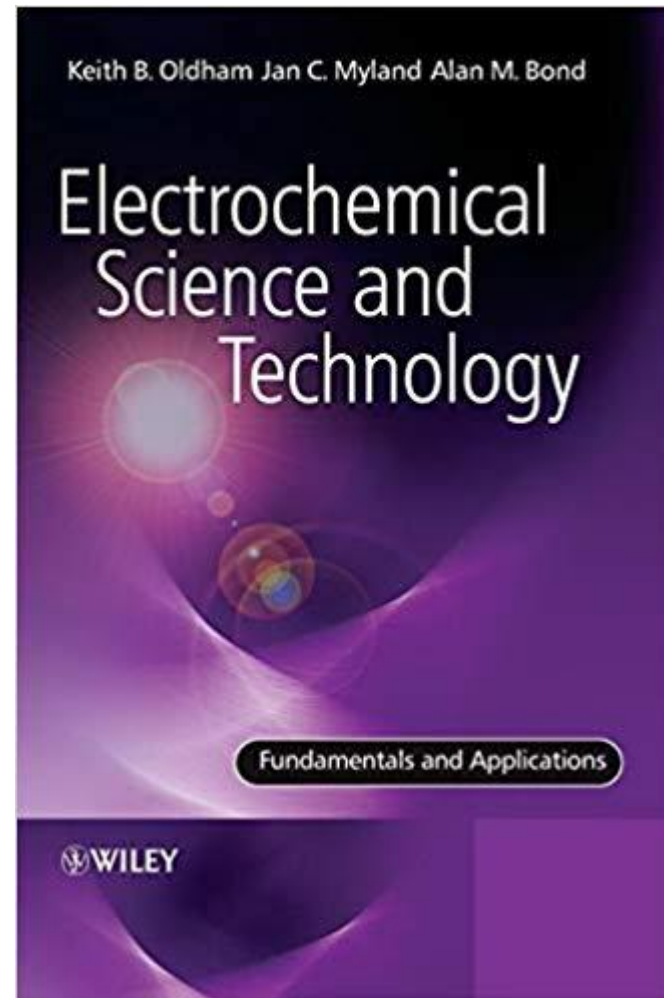
KJM 3110 Curriculum

- Keith B. Oldham, Jan C. Myland, Alan M. Bond:
- “ELECTROCHEMICAL SCIENCE AND TECHNOLOGY - Fundamentals and Applications”
- Wiley (2012)
- ISBN: 9780470710852 (HB), ISBN: 9780470710845 (PB)

- Chapters 1 and 3-15

- +

- 4 Laboratory exercises



Authors:	Title:	Publisher/year:	Pages:
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Oldham, Myland, Bond	ELECTROCHEMICAL SCIENCE AND TECHNOLOGY - Fundamentals and Applications	Wiley, 2012	300
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Ch.	Title	Page
1	Electricity	1
(2	Chemistry	29)
3	Electrochemical cells	55
4	Electrosynthesis	71
5	Electrochemical power	85
6	Electrodes	105
7	Electrode reactions	125
8	Transport	145
9	Green electrochemistry	171
10	Electrode polarization	193
11	Corrosion	213
12	Steady-state voltammetry	231
13	The electrode interface	250
14	Other interfaces	287
15	Electrochemistry with periodic signals	303
(16	Transient voltammetry	328)
(Appendix		365)
Index		393
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Total		300

Web: KJM 3110 Course and semester pages

Studies

Courses

KJM3110

Spring 2020

< KJM3110 - Electrochemistry

Semester page for KJM3110 - Spring 2020

Schedule >

Examination: Time and place >

Syllabus/achievement requirements >

Contact

Department of Chemistry

Teachers

- Truls Norby

Messages

[New message](#)

[Important: Course startup](#)

[Edit](#)

Dear all,

The course KJM3110 Electrochemistry runs first time this semester.

The start will be delayed one week - starting week 4 - first lecture is Monday January 20, at 10.15-12.00 as announced in Curie (Chemistry building). I look forward to seeing you there!

The curriculum textbook can be found in another link on this page - it is ordered for sale in Akademika.

Truls Norby

Jan. 6, 2020 5:31 PM

KJM 3110 Exam

Studies

Courses

KJM3110

Spring 2020

Examination

< KJM3110 - Spring 2020

Examination: Time and place

Deadline for withdrawing from the exam

May 1

Examination

Final written exam.

Time: June 12 at 9:00 AM (4 hours).

Place:

- Sal 3C Silurveien 2
- Sal 3D Silurveien 2

You must check [Studentweb](#) where to show up since there are several examination rooms.

Examination system: Inpera – [see guides for digital exams](#)

Laboratory course that must be approved before final exam

Examination results

You will find your examination results by logging on to [Studentweb](#).

More about the examination

You will find more information about examination related to this course in the [course description](#).

Course content (Kursinnhold)

- The course provides an introduction to electrochemistry; theory, methods, and applications. It builds on physical chemistry and lays the ground for handling problems and methods of electrochemical nature in master degree projects, research and industry.

Learning outcome (Læringsmål)

- After completing the course
 - you can identify, define, and classify electrochemical reactions and the components involved - electrolyte, electrodes, and interfaces.
 - you have fundamental understanding of definitions, driving forces, mechanisms, and kinetics of electrochemical reactions.
 - you know the structure and properties of electrode-electrolyte interfaces.
 - you can carry out electrochemical experiments with various types of cells and instrumentation (potentiostat and impedance spectrometer).
 - you have knowledge of applications and problems of electrochemical nature of importance in today's society and industry.

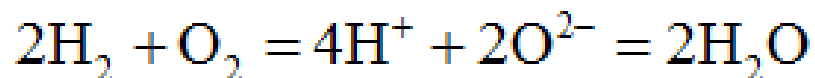
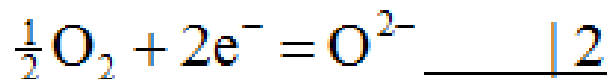
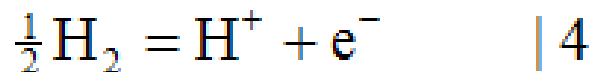
Week	Mondays 10-12 Curie; Lectures	Fridays 09-11 Curie; Lectures	Fridays 12-14 (or 17) Curie; Coll./Lab	Mandatory
3	No teaching			
4	20/1 <i>Intro, Ch. 1 Electricity</i>		<i>Ch. 1 Electricity</i>	Mandatory Intro Lecture
5	27/1 <i>Ch. 3 Electrochemical cells</i>			
6	3/2 <i>Ch. 4 Electrosynthesis</i>			
7	10/2 <i>Ch. 5 Electrochemical power</i>			
8	17/2 <i>Ch. 6 Electrodes</i>			
9	24/2 <i>Ch. 7 Electrode reactions</i>			
10	2/3 <i>Ch. 8 Transport</i>		<i>Lab 1</i>	Mandatory lab
11	9/3 <i>Ch. 9 Green electrochemistry</i>			
12	No teaching – week of mid term exams			
13	23/3 <i>Ch. 10 Electrode polarization</i>		<i>Lab 2</i>	Mandatory lab
14	30/3 <i>Ch. 11 Corrosion</i>			
15	Easter Holidays (no teaching)			
16			<i>Lab 3: Excursion to IFE</i>	Mandatory lab excursion
17	20/4 <i>Ch. 12 Steady-state voltammetry</i>			
18	27/4 <i>Ch. 13 The electrode interface</i>		1. Mai	
19	4/5 <i>Ch. 14 Other interfaces</i>			
20	11/5 <i>Ch. 15 Electrochemistry with periodic signals</i>		<i>Lab 4: Excursion to SINTEF</i>	Mandatory lab excursion
21	18/5 <i>Repetition</i>			
22-24	<i>Exam (digital) 12/6-2020 09.00 (4 hours) Sal 3C-D Silurveien 2</i>			

Preamble

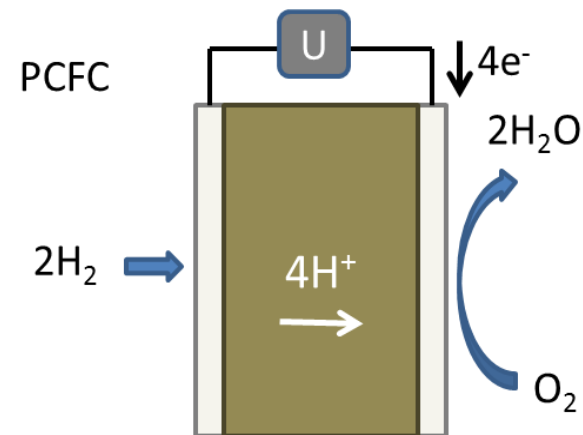
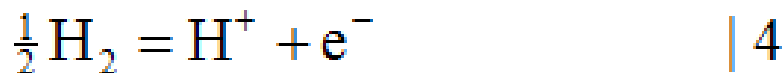
What is electrochemistry?

Importance of electrochemistry

What is electrochemistry? Related to redox chemistry.
 In Electrochemistry Red and Ox take place at different locations.
 Requires transport of ions and electrons.



- Electrochemical reaction:
- Different locations, transport of (the same) ions and of electrons



Importance of electrochemistry

- Metallurgy
- Electroplating
- Electrolysis
- Fuel cells
- Batteries
- Sensors
- Corrosion
- Biology
- ...

