



# TREESEARCH

## Course: **Regenerated Cellulose and Cellulose Derivatives**

Course leader: **PhD Helena Håkansson**

Date: November 04-08, 2019

Place: **Karlstad University**, Karlstad, Sweden



### Principal lecturers:

Professor Ulf Germgård	Karlstad University, SW	<a href="mailto:ulf.germgard@kau.se">ulf.germgard@kau.se</a>	UG
Professor Gunnar Henriksson	Karlstad University, SW	<a href="mailto:g Henrik@kth.se">g Henrik@kth.se</a>	GH
Professor Herbert Sixta	Aalto University, Finland	<a href="mailto:herbert.sixta@aalto.fi">herbert.sixta@aalto.fi</a>	HS
Professor Gunnar Westman	Chalmers UoT, SW	<a href="mailto:westman@chalmers.se">westman@chalmers.se</a>	GW
Ass professor Hubert Hettegger	BOKU, Austria	<a href="mailto:hubert.hettegger@boku.ac.at">hubert.hettegger@boku.ac.at</a>	HHe
Ass professor Merima Hasani	Chalmers UoT, SW	<a href="mailto:merima.hasani@chalmers.se">merima.hasani@chalmers.se</a>	MHa
PhD Helena Håkansson	Karlstad University, SW	<a href="mailto:helena.hakansson@kau.se">helena.hakansson@kau.se</a>	HHa
PhD Bjørn Kreutz	Borregaard, Norway	<a href="mailto:bjorn.kreutz@borregaard.com">bjorn.kreutz@borregaard.com</a>	BK
PhD Jutta Speda	Freudenberg, SW	<a href="mailto:jutta.speda@fhp-ww.com">jutta.speda@fhp-ww.com</a>	JS
PhD Leif Karlsson	Nouryon, Sweden	<a href="mailto:leif.karlson@nouryon.com">leif.karlson@nouryon.com</a>	LK
PhD Jonas Karlsson	Nouryon, Netherlands	<a href="mailto:jonas.karlsson@nouryon.com">jonas.karlsson@nouryon.com</a>	JK
MSc Carl-Axel Söderlund	CAS Consulting, SW	<a href="mailto:cas.so@telia.com">cas.so@telia.com</a>	CAS

**Monday, November 04 09.30-16.00 Room: ?**

---

Lecturer/laboratory no; **Introduction, Overview, Cellulose, Commercial production** LECTURER

---

1. (09.30-10.00) Introduction, information, evaluation 0.5 hr HHa
2. (10.00-11.30) Overview (history, market, products, trends, capacities) 1.5 hr UG
3. (11.30-12.00) Cellulose, cellulose structures, enzymes 0,5 hr GH

LUNCH

4. (13.00-14.00) Cellulose structures, cont. 1 hr GH
5. (14.00-15.00) Borregaard- a speciality cellulose producer 1 hr BK
6. (15.00-16.00) Activation of dissolving pulps 1 hr BK

---

18.30 DINNER

**Tuesday, November 05 08.15-17.00 Room: ?**

---

Lecturer/laboratory no; **Dissolving pulp, Lyocell, New spinning processes** LECTURER

---

7. (8.15-11.00) Lyocell, fiber spinning, new spinning technologies 3 hr HS
8. (11.00-12.00) CMC manufacturing and properties 1hr JK

LUNCH

9. (13.00-14.00) EHEC and other cellulose derivatives 1 hr LK
10. (14.00-16.00) Cellulose carbamates and esters, products 2 hr HHe
12. (16.00-17.00) Group assignments, instructions 1 hr HHa

**Wednesday, November 06 08.15-17.00 Room: ?**

---

Lecturer/laboratory no; <b>Viscose, Assignments</b>	LECTURER
12 (08.15- 11.00) Mercerization, viscose, new fibers	3 hr CAS
13 (11.00- 17.00) Group assignments	5 hr HHa, UG

---

---

**Thursday, November 07, 07.15-17.00 Visit to Freudenberg, Norrköping, SW**

---

	LECTURER
14 (07.15-10.30) Bus ride to Norrköping	3 hr HHa, UG
15 10.30 – 12.00 Visit to Freudenberg HP Production plant	1,5 hr JS
16 LUNCH	
17 (13.00-14.15 ) Plant tour	1,5 hr JS
18 (14.15-17.00) Bus ride back to Karlstad	3 hr HHa, UG

---

**Friday, November 08, 08.15-14.00, New processes, Presentation of Assignments, Seminar**

---

Seminar	LECTURER
<b>16.</b> (08.15-09.15) New cellulose derivatives.	1 hr GW
<b>17.</b> (09.15-10.00) New textile processes based on cellulose	1 hr MH
<b>18.</b> (10.00-12.30) Presentation of assignments	2 hr HHa, UG
LUNCH	
<b>19.</b> (13.30-14.00) Info on the written examination, course evaluation, questions and comments, etc	1 hr HHa, UG
<b>20.</b> (14.00) End of course	

---