**Themenliste Seminar Funktionale Datenanalyse WiSe 2015/2016**

**Für alle zum Lesen:**
Glättung, Mixed models Darstellung von penalisierter Likelihood
- Fahrmeir, L., Kneib, T., & Lang, S. (2007). Regression. Springer-Verlag
Berlin, Heidelberg.
  - Kap. 6.7, 7.1.1 - 7.1.4 zur Vorbereitung
  - Kap. 7.1.9, 8.5.2. direkt relevant
- Sørensen, H., Goldsmith, J., & Sangalli, L. M. (2013). An introduction with medical applications to functional data analysis. *Statistics in medicine*, 32(30), 5222-5240.
- Cuevas, A. (2014). A partial overview of the theory of statistics with functional data. *Journal of Statistical Planning and Inference*, 147, 1-23.
- Abschnitte 1., 2., 3.2, 5.1 (Modell ohne Details), 5.2 (Modell ohne Details)

- Einführung und entsprechende Abschnitte aus Ramsay, J.O. & Silverman, B.W. (2005): *Functional Data Analysis, 2nd Edition, New York: Springer.*

**1. Funktionale Hauptkomponentenanalyse (Jona Cederbaum)**
- Ramsay & Silverman (2005): Kapitel 8 und 9
- Yao, Müller & Wang (2005): Functional Data Analysis for Sparse Longitudinal Data, *Journal of the American Statistical Association*, 100(470), 577-590.


**2. Zwei der drei Themen Deskription, Registrierung, Ausreißerdetektion für funktionale Daten (Fabian Scheipl)**
- Hyndman & Shang (2012): Rainbow Plots, Bagplots, and Boxplots for Functional Data, J*ournal of Computational and Graphical Statistics,* 19(1), 29-45.
- Ramsay & Silverman (2005): Kapitel 7
- López-Pintado & Romo (2012): On the Concept of Depth for Functional Data, *Journal of the American Statistical Association*, 104(486), 718-734.


**3. Regression Skalar-auf-Funktion (Sonja Greven)**
- Ramsay & Silverman (2005): Kapitel 15
- Goldsmith, Bobb, Crainiceanu, Caffo & Reich (2011): Penalized Functional Regression, *Journal of Computational and Graphical Statistics*, 20(4), 830-851.


**4. Regression Funktion-auf-Skalar (Fabian Scheipl)**
- Ramsay & Silverman (2005): Kapitel 13
- Reiss, Huang & Mennes (2010): Fast Function-on-Scalar Regression with Penalized Basis Expansions, *The International Journal of Biostatistics*, 6(1).

**5. Boosting für funktionale Regression (Sonja Greven)**
- Hofner, B., Mayr, A., Robinzonov, N., & Schmid, M. (2014). Model-based boosting in R: a hands-on tutorial using the R package mboost. *Computational Statistics*, 29(1-2), 3-35.
- Brockhaus, S., Scheipl, F., Hothorn, T., & Greven, S. (2015). The functional linear array model. S*tatistical Modelling*, 15(3), 279-300.

Als ergänzende Literatur jeweils Entsprechendes aus
- Ramsay, J.O. & Silverman, B.W. (2002): Applied Functional Data Analysis, New York: Springer.
- Ramsay, J.O., Hooker, G. & Graves, S. (2009): Functional Data Analysis with R and Matlab, Dordrecht (u.a.): Springer.


**R-Pakete**
fda - Functional Data Analysis
rainbow - Rainbow plots, bagplots and boxplots for functional data
refund - Regression with Functional Data
FDboost – Boosting functional regression models