The main aim of the course will be to reach some interesting applications of forcing, e.g., in the set theory of reals.

Content of the course (= material required for the exam).
This course will continue approximately at the point where the course Axiomatische Mengenlehre 1, I taught in the previous semester (http://www.logic.univie.ac.at/~lzdomskyy/set_theory_1_ss2015.pdf), left off. We will start with iterated forcing, MA, then move to proper forcing, along with applications. Among others, I plan to cover the Laver’s result that consistently all strong measure zero sets are countable.

The Exam will be oral.
You can pass the exam on either of the following days:
1. 29.01.2016, during the last lecture.
2. 12.02.2016, 10:00-12:00.
3. To be announced later.
Please send me a short e-mail at least 2 days in advance!
Should you prefer to have an exam on some other day, any time which doesn’t contradict the rules of the University is suitable for me. Again, an e-mail a couple of days in advance is needed!

Schedule. Friday, 15:00–17:20.

Thanks to the participants of my previous courses I have some parts of [1, 4, 5, 3] scanned. Send me an e-mail if you need them.
All necessary facts from mathematical logic we will use are available in http://home.mathematik.uni-freiburg.de/ziegler/skripte/logik.pdf

Language: English.

What have we already learned and reading material for the next lecture
• Lecture 1, 02.10.2015
  Done: We have repeated some basic facts about forcing covered in my “Set Theory 1” course mentioned above.
  To be read: [5, pp. 211 - 223], from the beginning of §6 until Boolean-valued models.
• Lecture 2, 09.10.2015
  Done: All suggested to be read except for 7.12, 7.13 on [5, pp. 222]. We’ll come back to these later.
  To be read: [5, Ch. VIII, §5] until Lemma 5.14.
Lecture 3, 16.10.2015
Done: We reached Definition 5.9 on [5, p. 273] and discussed it.
To be read: [5, Ch. VIII, §6].

Lecture 4, 23.10.2015, by Stefan Hoffelner.
Done: We proved the consistency of the MA.
To be read: [4, pp. 379–385] and an initial part of [1] until the proof that the countable support iteration of proper posets is proper.

Done: Following mainly [1], we proved some basic properties of proper forcing.
To be read: [1, Definition 2.3 and §2.1].

Lecture 6, 18.12.2015.
Done: Again following [1], we proved that countable support iterations of proper posets is again proper, and such iterations of length $\leq \omega_2$ have $\omega_2$-c.c. provided that CH holds in the ground model and the iterands have size $\leq \omega_1$.
To be read: [6] until p. 159.

Lecture 7, 08.01.2016.
Done: Following [6], we have established some basic properties of the Laver forcing.
To be read: [6] till the end.

Lecture 8, 15.01.2016.
Done: We reached [6, Lemma 6].
To be read: [2, pp.23-27]. This seems to be the best explanation of how to treat an iteration $P_\alpha$ of length $\alpha$ as a two step iteration $P_\beta \ast P_{\beta,\alpha}$.

Lecture 9, 22.01.2016.
Done: We’ve finished with the proof of [6, Lemma 12].
To be read: The rest of [6].

Lecture 10, 29.01.2016.
Done: [6] till the end.

References